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TRAINING REQUIREMENTS ANALYSIS

451X6

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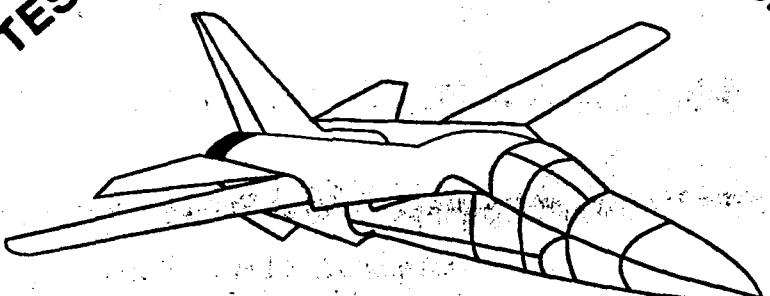
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AVIONICS TEST STATION AND COMPONENT SPECIALIST/TECHNICIAN



AUTOMATIC TEST STATIONS
MANUAL AND ELECTRONIC WARFARE TEST STATIONS

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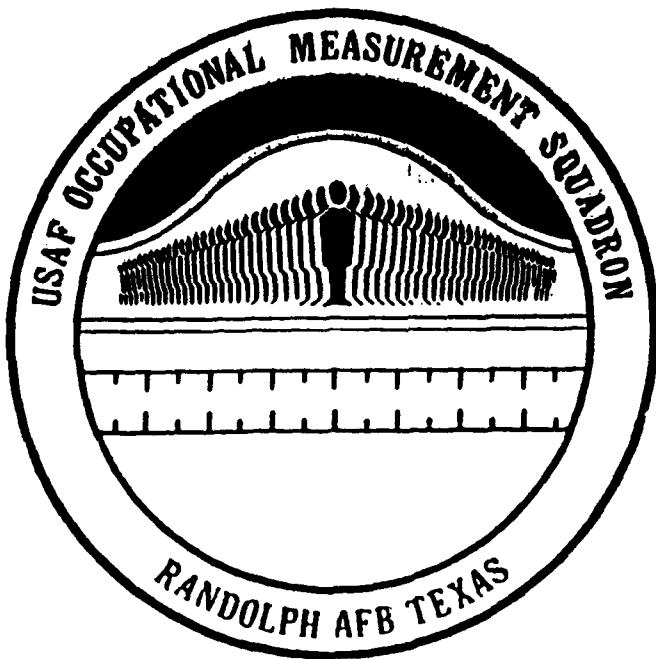
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**A SPECIAL THANKS TO THE MANY HARD-WORKING F-111 AVIONICS TEST
STATION AND COMPONENT PERSONNEL AND SUPERVISORS FOR THEIR
EXPERTISE AND OUTSTANDING SUPPORT ON THIS PROJECT.**



**F/FB-111 AVIONICS TEST STATION AND COMPONENT
SPECIALIST/TECHNICIAN (AFSC 451X6)**

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QUALITY ASSURANCE

PREFACE

The United States Air Force Occupational Measurement Squadron (USAFOMS), Occupational Analysis Flight (OMY), is assigned primary responsibility for developing occupational survey reports (OSRs) and training requirements analyses (TRAs) for Air Force specialties. OSRs summarize the results of occupational surveys and identify the structure of the career ladder in terms of jobs performed. TRAs identify the activity, skill, and knowledge requirements needed to perform those jobs as well as specific training needs for each specialty. Together, OSRs and TRAs provide a basis for revision or development of specialty training standards (STSSs), course training standards (CTSs), initial skills training, on-the-job training (OJT), and career development courses (CDCs). TRAs fulfill most requirements of steps 1 and 2 of the Instructional System Development (ISD) model prescribed in AFR 50-8, Policy and Guidance for Instructional System Development (ISD).

The Air Training Command Training Staff Officer (HQ ATC/TTOA) requested this TRA, in conjunction with an OSR, to provide task analysis data for use in updating initial skills and follow-on courses for the 451X6 career ladder. Copies of this report are available to Air Staff sections, MAJCOMs, the OJT community, and other interested training and management officials upon request. Address requests to USAFOMS/OMY, Randolph AFB TX 78150-5000 or 3400 TTS/OMS, Lowry AFB CO 80230-5000.

This volume consists of three sections: Specialty Overview, TRA Development Procedures, and Results. In addition, the task analysis volume contains a detailed examination of all AFSC 451X6 specialty-unique tasks.

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TABLE OF CONTENTS

	PAGES
EXECUTIVE SUMMARY	
Purpose	1
Procedures	1
Results	1
SPECIALTY OVERVIEW	
Background	3
Mission Description	3
Manning	4
Training Currently Available	4
Specialty Concerns	5
Advanced Technology Training Delivery (ATTD) Systems	6
Future Plans	7
TRA DEVELOPMENT PROCEDURES	
Planning	8
TRA Task List Development	8
Data Collection	8
RESULTS	
Common Skills and Knowledge	11
General Training Recommendations	11
Specific Training Recommendations	13
APPENDICES	
A. Comparison of Skill and Knowledge Requirements	14
B. Common Skill and Knowledge Requirements	27
C. Specific Training Recommendations	33
D. Electronic Fundamentals/Applications (EFA) TRA Task Correlation	78
E. Acronym List	104

VOLUME II - Task Analysis (AFSC 451X6)

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EXECUTIVE SUMMARY

Purpose

The purpose of this training requirements analysis (TRA) is to assist in determining training requirements for F-111 Avionics Test Station and Component personnel in light of recent RIVET WORKFORCE (RWF) restructuring efforts. The information may be used to evaluate the adequacy, feasibility, and efficiency of the training provided within this rapidly changing specialty.

Procedures

Data for this TRA were gathered by means of field interviews with F-111 Avionics Test Station and Component personnel. The TRA task list was extracted from the January 1989 451X6 USAF Job Inventory (JI). A total of 86 subject-matter experts (SMEs) at SAC, TAC, and ATC bases were interviewed to gather task data and other training decision data. In addition, system overview information was gathered from HQ USAF, the TAC functional manager, and members of Lowry Technical Training Center (LTTC).

Results

The analysis of collected data resulted in both general and specific training recommendations. These recommendations are designed to create the best possible training environment, given realistic constraints in the areas of manpower and resources. The general recommendations are:

1. Consider the common skill and knowledge requirements identified in the task analysis when designing or revising training. Training should emphasize the similarities within and across the AFSC shreds. This approach may help graduates understand the broader applicability of their skills and knowledge.
2. Evaluate the need to increase emphasis on using TOs in resident training. Analysis reveals the ability to apply information contained in TOs is critical to job performance. Since all job requirements are TO driven, successful task accomplishment depends on how well technicians can locate, cross-reference, and apply the information.
3. Consider restructuring the F-111 Avionics Test Station and Component initial skills courses to shift emphasis from "testing line replaceable units (LRUs)" to "isolating basic malfunctions" through standard test procedures.

4. Consider using career development courses (CDCs) to cover the knowledge requirements that differ among major functional areas required for 5-skill-level upgrade. Because of the experience gained by this point in an airman's career, CDCs can cover the differences between specific equipment items.

Specific training recommendations are presented in STS format in Appendix C. They include numerous proposals for content and proficiency code changes, which indicate what to train, where to train, and to what level. For correlation purposes, TRA tasks are cross-referenced with applicable STS items. These specific training recommendations can assist training managers and curriculum developers in revising the STS at the next utilization and training workshop (U&TW).

SPECIALTY OVERVIEW

Background

The 451X6 specialty was created on 1 May 1987 as a result of RWF restructures. Prior to May 1987, the career field was structured as follows:

- 326X3A - Electronic Warfare (EW) Equipment and Component Specialty
- 326X4A - Integrated Avionics Computerized Test Station and Component Specialty
- 326X5A - Integrated Avionics Manual Test Station and Component Specialty

The AFSCs were shredded by aircraft through the 5-skill level and merged at the 7-skill level. For example, F-111 "automatics" 7-skill-level personnel were also responsible for "automatics" duties on the F-15s and F-16s.

After RWF initiatives, the AFSC structure is as follows:

- 451X6A - Automatic Equipment
- 451X6B - Manual and EW (MEW) Test Stations and Consoles

The AFSC is still shredded through the 5-skill level, but at the 7-skill-level, personnel assume the responsibilities of both shreds on only the F-111.

The RWF restructuring initiatives caused numerous changes in the duties and responsibilities of F-111 Avionics personnel. Changes in training requirements for resident, CDC, and OJT programs have also occurred.

Mission Description

F-111 Avionics Test Station and Component personnel perform a variety of tasks based upon the missions of their MAJCOM. They inspect, troubleshoot, repair, modify, program, calibrate, and certify computerized and manual test stations, consoles, EW components, and system components. They use shop avionics test stations, consoles, support equipment (SE), and specialized precision-measuring equipment. Personnel also inspect, calibrate, identify malfunctions, and perform maintenance on automatic, semiautomatic, and manual avionics test stations and consoles.

Manning

As of 31 May 1991, the F-111 Avionics Test Station and Component specialty had 904 personnel authorized and 858 assigned. Table 1 contains data on the number authorized versus the number assigned by shred.

**TABLE 1
AFSC 451X6 MANNING**

AFSC	45176	451X6A	451X6B	TOTAL
AUTHORIZED	185	423	296	904
ASSIGNED	264	331	263	858
PERCENTAGE	143%	78%	89%	95%

The manning situation is not stable. According to HQ TAC/LGMF, the cuts projected by RWF restructuring efforts have not yet been made. Part of the agreement under RWF was to make no reductions until completion of the 3-year transition period. Since the transition period was completed in October 1990, manning levels are being reevaluated, and additional cuts are anticipated. It is unknown at this time whether the anticipated cuts will be sufficient to meet overall Air Force manning requirements. Since every unit visited during TRA development felt "undermanned," these future cuts emphasize the need for effective training.

Training Currently Available

Formal courses for AFSC 451X6 are currently offered by the 3450th Technical Training Squadron, Lowry AFB CO. A complete description of course prerequisites and content can be found in AFR 50-5, USAF Formal Schools.

All enlisted personnel assigned to the F-111 Avionics Test Station and Component Air Force specialty must attend and complete the Electronic Training Course after graduation from Basic Military Training School (BMTS). The next step is the appropriate F-111 Avionics Test Station and Component course ("A" shred-Automatics; "B" shred-Manual/Electronic Countermeasures (ECM)) for award of the 3-skill level. Upon completion, they are assigned to F-111 Avionics Test Station and Component units throughout the Air Force. Once personnel obtain a 7-skill level, the shred is dropped. The following illustration depicts AFSC 451X6 training from BMTS to the 7-skill level.

BMTS
LENGTH: 30 DAYS
LOCATION: LACKLAND AFB TX

ELECTRONIC TRAINING COURSE
G3AQR45020 000
LENGTH: 15 WEEKS 4 DAYS
LOCATION: LOWRY AFB CO

"A" Shred

F-111 AVIONICS - AUTOMATICS
G3ABR45136A 000
LENGTH: 14 WKS 3 DAYS
LOCATION: LOWRY AFB CO

"B" Shred

F-111 AVIONICS - MANUAL/ECM
G3ABR45136B 000
LENGTH: 15 WKS 1 DAY
LOCATION: LOWRY AFB CO

ASSIGNMENT TO F-111 AVIONICS
TEST STATION AND COMPONENT
AUTOMATICS SHOP

ASSIGNMENT TO F-111 AVIONICS
TEST STATION AND COMPONENT
MEWS SHOP

AWARD OF 45156A

AWARD OF 45156B

AWARD OF AFSC 45176

Specialty Concerns

This section provides a summary of specialty concerns identified during task analysis. These concerns were consolidated during months of interviews with technicians at all levels. A few of these concerns are also addressed indirectly in the Results section.

1. Loss of expertise. Personnel feel the RWF initiatives are having a negative impact upon morale and job satisfaction. The most common complaint is that technicians are required to work on too many different test stations and LRUs and cannot become proficient on all. Many people expressed a desire for even more specialization than existed before RWF.

2. Advanced courses. Some technicians feel advanced courses should be provided for troubleshooting the more difficult tester replaceable units (TRUs). No such courses are currently available.

3. Graduated training. Technicians believe training should be accomplished concurrent with career progression. During the first enlistment, the only areas taught should be basic electronic fundamentals and an introduction to test station troubleshooting. During the second enlistment, courses should primarily provide detailed troubleshooting training. (NOTE: This was the original proposal by USAF/LEYM during initiation of RWF in 1987.)

4. Personnel should be controlled by a special experience identifier (SEI). Members feel experience is lost when personnel PCS to an installation that does not have the equipment they were trained on. (See Future Plans.)

Advanced Technology Training Delivery (ATTD) Systems

During the initiation of the 451X6 TRA, the TSO asked USAFOMS to analyze the possibility of satisfying training with some form of ATTD such as Interactive Video Disk (IVD) or computer-based training. HQ ATC/TTOA was specifically interested in determining if a job requirement coded "2b" (partially proficient on step-by-step procedures) could be satisfied with media other than face-to-face and hands-on instruction.

Because there is currently no validated training delivery system employing ATTD in ATC for the 45XXX career field, it was not possible to do a systematic analysis. A previous "4-skill-level" study in the 451XX arena showed graduates who used trainers were more proficient upon completion of initial skills training and required less time for 5-skill-level upgrade than the graduates that did not use trainers. In addition, the "Manager's Guide to New Training Technologies," published in August 1989, showed all ATTD systems have greater potential than conventional training for characteristics such as interactivity, standardization of instruction, and fewer instructor requirements. Other benefits of ATTD include greater range of instructional strategies, long-term reduced costs, and increased reliability.

Having looked at several applications of IVD for weapons systems, there is no reason why IVD or another form of ATTD cannot be used to teach certain job requirements. Good job candidates to use for implementing an ATTD system are the troubleshooting tasks, because the branching or logic process used during troubleshooting is well suited to ATTD systems.

A major problem facing resident training is the inability to insert malfunctions in equipment, because this practice often involves "breaking" operational equipment. This restriction makes the use of operational equipment to teach troubleshooting virtually impossible. ATTD systems can fill the gap. It can give graduates an increased understanding of troubleshooting logic and better prepare them to tackle troubleshooting situations in an OJT

environment. Although using this approach is not the same as troubleshooting on an actual test station or LRU, the multitude of scenarios and level of difficulty that can be achieved far exceed the current training capabilities.

Future Plans

With Cannon AFB NM soon to be the only F-111 base, several proposals have been presented to manage this career field. The first is to distribute personnel overages to all integrated avionics AFSCs. This would create overages in all related AFSCs, as opposed to just the F-111 community; however, there would be no overseas rotation index for the people assigned to Cannon. The second proposal is to create a generic 45XXX AFSC. Personnel would be trained on generic integrated systems and assigned as needed. Assignment rotation would be among all integrated avionics aircraft. The third proposal is to tie the F-111 and F-15E aircraft together. This would provide an overseas rotation index for F-111 personnel and relieve the F-15E training burden from the F-15 community.

There is also a proposal to assign an SEI to personnel with AL/ALM 204 Test Station and ECM pod experience. This SEI could be used for assignment purposes, if one of the above restructure proposals is accepted.

This TRA revealed many unauthorized, but necessary, maintenance actions. The Air Force is already moving toward making these actions official by implementing regional support centers, by starting programs such as Deployed Aircraft Repair Techniques (DART), and by moving toward a two-level maintenance concept. The increasing demands on job performance will require innovation, flexibility, and above all, quality in all areas of training design and delivery.

TRA DEVELOPMENT PROCEDURES

Planning

Training analysts from 3400 TSS/OMS, formed the project team for this TRA. Work began with a thorough review of the specialty documentation, including duties in AFR 39-1, the existing STS, course descriptions in AFR 50-5, resident course documents, and CDCs. The analysts interviewed functional managers, shop chiefs, and course management personnel for help in determining bases to visit and identifying training issues. This information gave the team a solid foundation for planning the project.

TRA Task List Development

Analysis of any specialty starts with a task list which describes each separate work function performed by technicians in the career ladder. The January 1989 451X6 USAF Job Inventory (JI) was used as the starting point for development of the TRA Task List. Supervisory, additional duty, and nonspecialty-specific tasks were removed, and the remaining JI statements were clustered into TRA tasks to be analyzed. During interviews with SMEs, many of these tasks were deleted or revised, and several tasks were added to better define duties performed. This process resulted in 153 TRA tasks; 46 for the "A" shred, 82 for the "B" shred, and 25 tasks common to both shreds.

Data Collection

Interviews were conducted with well-qualified SMEs selected by branch and shop chiefs at Cannon, Mountain Home, and Plattsburg AFBs, and LTTC. The interviews matched qualified personnel with the tasks identified for analysis. The support provided by MAJCOM representatives was essential to the success of task analysis.

The task-level information provided by SMEs formed the basis of the TRA descriptive data base. SME interviews continued until project analysts received consistently duplicate information. Although the number of SMEs needed to analyze a task varied, careful SME selection for interview, followed by validation with SMEs assigned to different MAJCOMs and weapons systems, helped assure a thorough, reliable data base.

The data were recorded on task analysis worksheets (TAWs). The following is an explanation of the TAW headings.

TASK NUMBER: TRA task number.

TASK STATEMENT: The task to be performed.

TASK NOTES: Contains brief comments or explanations to enhance understanding of the task statement.

EQUIPMENT, TOOLS, SUPPLIES: Equipment, tools, supplies, etc., required to perform the task.

REFERENCES: Lists the TOs, AFOSH Standards, Regulations, and any other references required to perform the task.

CONDITIONS: Environment in which a task is performed. Includes consideration of the actual physical environment. A condition for all tasks is "In a secured area." If no condition is listed, it is understood that this is the only condition for that task.

CUES: Actions or directives that initiate, signal, or prompt the performance of the task.

STANDARDS: Specifies the job performance evaluation standards for performing the task accurately and expediently.

ACTIVITIES: Significant steps required to perform the task.

SKILLS: Skills involve physical or manipulative activities, often requiring knowledge and special requirements for speed, accuracy, or coordination for task execution.

KNOWLEDGE: Knowledge, not directly observable, involves the use of mental processes enabling recall of facts, identification of concepts, application of rules or principles, solving of problems, or creative thinking, etc.

RELATED OCCUPATIONAL SURVEY DATA: Occupational survey data are used with the Training Decisions Logic Table (ATCR 52-22, Occupational Analysis Program, Attachment 1) to determine where tasks should be trained and to what level. The following explains the data columns listed within this report.

AFSC	DUTY/ TASK	TNG EMP	1ST JOB	1ST ENL	5 LVL	7 LVL	TSK DIF	ATI
								Automated Training Indicator (Not available for this AFSC)
								Task Difficulty Rating (4.00-6.00 = average difficulty)
								Percentage of 7-skill-level survey respondents who perform the task
								Percentage of 5-skill-level survey respondents who perform the task
								Percentage of 1- to 48-month TAFMS survey respondents who perform the task
								Percentage of 1- to 24-month TAFMS survey respondents who perform the task
								Training Emphasis Rating (Not available for this AFSC)
								USAF Job Inventory duty code and task number
								Identifies shredded data by alpha suffix (No suffix indicates data are representative of entire AFSC)

USAF JOB INVENTORY TASK STATEMENTS: A listing of job inventory statements applicable to the task. Some job inventory tasks are related to TRA tasks, but they cannot be classified as activity, skill, or knowledge behaviors. These are normally equipment-specific statements and are included because they will provide additional information about the task.

RESULTS

This section consists of common skills and knowledge, general recommendations for specialty training, and specific training content recommendations. The recommendations are designed to create the best possible training environment, given realistic constraints in the areas of manpower and resources. The priority and feasibility for implementation of the recommendations will be determined by Air Staff, MAJCOM, and the F-111 Avionics Test Station and Component School personnel.

Common Skills and Knowledge

Once the task data were collected from SMEs, they were analyzed by USAFOMS training analysts. Skills and knowledge required to perform each of the tasks were identified. A complete listing of these skill and knowledge requirements is presented in Volume II of this TRA in the form of task analysis worksheets.

After identification of the skills and knowledge required to perform each task was completed, training analysts then compared the requirements across the AFSC shreds. This comparison showed the number of times a skill or knowledge was required for each shred (see Appendix A).

All skill and knowledge requirements were then grouped into four categories: (1) those which apply to all functions; (2) those which apply only to performing operational checkouts; (3) those which apply only to isolating malfunctions; and (4) those which apply only to repair tasks. From this listing, common skill and knowledge requirements were identified. For an item to have been considered common, it had to appear in 10 percent or more of the tasks within one of the four major groupings listed above. Appendix B lists all the common skill and knowledge requirements identified in this manner.

General Training Recommendations

1. Consider the common skill and knowledge requirements identified in the task analysis when designing or revising training.

Training should enable personnel to transfer what they know about one piece of equipment to the next. Analysis results indicate areas of commonality in the skill and knowledge requirements within and across the AFSC shreds. Training could emphasize these commonalities by teaching technicians how to run confidence tests, test LRUs, and troubleshoot malfunctions independent of a particular piece of equipment. Although training must be conducted using specific pieces of equipment, it should be approached in a manner that points out the broader applicability of their skills and knowledge.

2. Evaluate the need to increase emphasis on using TOs in resident training.

Analysis shows that the ability to apply TO information is critical to job performance. Since all job requirements are TO driven, successful completion depends upon how well a technician can locate, cross-reference, and apply the information. Although the types of TOs and their uses are covered in current courses, analysis has shown that graduates could benefit substantially from an increase in "hands-on" TO usage. This will not be an easy job, since this will require increased course time and larger TO libraries. Suggestions for improving the "hands-on" time include having students find the actual TOs they will need, making students research TOs to solve problems, and eliminating the use of TO extracts. No matter how TO usage is approached, this knowledge should be reinforced throughout the course.

3. Consider restructuring the F-111 Avionics Test Station and Component courses to shift training emphasis from "testing LRUs" to "isolating basic malfunctions."

Although LRUs and test stations may differ in their function and operational characteristics, analysis results have proven that the steps a technician must take to operationally test each unit are virtually the same. The cables, adapters, and test equipment involved may vary, but the same skills and knowledge are required for each one. Operational testing is considered by technicians to be the "easy" task of this specialty, and training time could be reduced considerably. The more difficult task is troubleshooting. The ability to determine the cause of a malfunction is the most valuable skill technicians need to master. Troubleshooting, however, has distinct levels. One level involves using the subroutines (diagnostics) of an operational checkout to find the problem or at least narrow it to several alternatives. A more difficult level is encountered when the subroutines fail to identify the cause of the problem. At this point, technicians must be extremely skilled in troubleshooting techniques to isolate the problem. Although these in-depth procedures should not be taught to 3-skill-level personnel, there is a definite need to teach basic troubleshooting to apprentices. They need experience in finding malfunctions through automated testing. They also need to understand why the automated procedures are not always effective. The earlier personnel learn the logic of troubleshooting, the more productive they are going to be. Going beyond this understanding and actually finding the cause of the malfunction should be reserved for advanced skill levels. The more sophisticated application of troubleshooting requires a greater experience base than an apprentice can be expected to achieve.

4. Consider using CDCs to cover the knowledge requirements that differ among test stations and LRUs for 5-skill-level upgrade.

Because of the experience being gained during upgrade training to the 5-skill level, CDCs can cover material, such as theory of operation and differences in characteristics among various pieces of equipment. Teaching this detailed knowledge in an initial skills course is unnecessary, since it will not be required until advanced skill levels. The areas recommended for inclusion are annotated as specific training recommendations in the CDC column of the STS.

Specific Training Recommendations

Specific training recommendations are provided in the form of recommended STS changes (Appendix C). These recommended changes are based primarily on the task analysis data, guidelines set forth in AFR 8-13, Air Force Specialty Training Standards and Air Force Job Qualification Standards, and ATCR 52-22, Occupational Analysis Program.

APPENDIX A
COMPARISON OF SKILL AND KNOWLEDGE REQUIREMENTS

Listed below are all the skill and knowledge requirements for both shreds. The numbers shown under each column are the number of times that skill or knowledge appeared in the task analysis for that shred.

A	B	SKILLS
-	1	S ADD COOLANT
-	2	S ADJUST SYNCHROS USING API
-	2	S APPLY HEAT SINK COMPOUND
-	1	S APPLY SEALANT
-	1	S APPLY THERMAL JOINT COMPOUND
2	2	S ASSEMBLE SOLDERLESS COAXIAL CONNECTORS
2	2	S ASSEMBLE SOLDERLESS CRIMP CONNECTORS
2	2	S ASSEMBLE SOLDERLESS MULTIPIN CONNECTORS
-	1	S ATTACH BARS TO PODS
2	-	S CALL UP TAPE
1	-	S CHECK OUTPUT OF TIME SHARE SWITCH
1	-	S CHECK OUTPUTS OF MOCKUP
1	1	S CLEAR OUT PROGRAM
34	35	S CONNECT ADAPTERS AND CABLES
1	1	S CONNECT AIR CONDITIONER
-	1	S CONNECT AIR HOSE
-	1	S CONNECT AN/ALM-186
-	1	S CONNECT AN/ALM-192
1	-	S CONNECT ANCILLARY EQUIPMENT
-	2	S CONNECT CALIBRATION BOXES
-	1	S CONNECT COOLANT LINES
-	2	S CONNECT COOLING SYSTEM TO POD
1	1	S CONNECT GENERATORS
1	1	S CONNECT HOSES
-	1	S CONNECT MONITOR CART ASSEMBLY
-	3	S CONNECT SELF-TEST HARNESS AND CABLES
-	1	S CONNECT SOURCE CART ASSEMBLY
4	-	S CONNECT WAVEGUIDES
1	1	S DEMAGNETIZE HEADS
1	-	S DISCHARGE CAPACITORS PRIOR TO MAINTENANCE
1	-	S ENTER HEX DATA
1	-	S EXECUTE TEST STATION PROGRAM (CALIBRATION OR OA/FI)
-	1	S EXERCISE REGISTERS
1	-	S FILL STATION WITH FC-40
1	-	S FILL STATION WITH LIQUID NITROGEN
1	1	S INPUT MAINTENANCE CONTROL PANEL
1	1	S INPUT TELETYPE
2	2	S INSTALL ADAPTERS
-	3	S INSTALL ANTENNA SHIELDS
-	1	S INSTALL CARTRIDGE
13	10	S INSTALL EXTENDER BOARDS
3	6	S INSTALL LRUs
-	2	S INSTALL POD ON AN/ALM-188
1	1	S INSTALL SHOP STANDARD
1	-	S INSTALL SINGLE TFR CHANNEL

A B SKILLS

-	1	S LOAD CITS
4	9	S LOAD COMPUTER PROGRAM
1	-	S LOAD DATE AND TIME
5	14	S LOAD DISK/TAPE
1	-	S MASK/UNMASK TRU USING THE PCM
-	4	S OPERATE AN/ALM-186
-	4	S OPERATE AN/ALM-187
-	1	S OPERATE AN/ALM-188
-	3	S OPERATE AN/ALM-192
-	1	S OPERATE BATTERY CHARGER
5	5	S OPERATE CENPAC
-	1	S OPERATE CONSOLE TAPE LOADER
-	1	S OPERATE DPTS
1	-	S OPERATE DTS
1	-	S OPERATE FILL STATION
1	1	S OPERATE FORKLIFT
-	5	S OPERATE GACT
-	1	S OPERATE IFF R/T
1	-	S OPERATE ITS
3	-	S OPERATE MOCKUP
-	1	S OPERATE POD
1	-	S OPERATE PRESSURE TESTER
-	1	S OPERATE PROM PROGRAMMER
-	8	S OPERATE SASE
-	1	S OPERATE SDC
3	-	S OPERATE SST
1	1	S OPERATE TEST SET
35	31	S OPERATE TEST STATION
1	-	S OPERATE TSLVC
1	1	S PERFORM GATS SELF-TEST
1	1	S PERFORM INITIAL ALIGNMENT OF STABILIZED PLATFORMS
1	1	S PERFORM PULSE GENERATOR SELF-TEST
1	2	S PERFORM SAFETY WIRING
41	78	S PERFORM VISUAL INSPECTION
1	1	S PREPARE NEW TAPE
4	-	S PRESSURIZE LRUS
1	-	S PROBE DC VOLTAGES USING BREAK-OUT BOXES
-	1	S READ FLOW METER
1	-	S REMOVE AND REPLACE HARNESS
1	-	S REMOVE REFLECTOR
1	-	S RUN VACUUM CHECKS
1	1	S SECURE BOTTLES TO TEST STATION
1	1	S SECURE EQUIPMENT ON PALLET
1	1	S SECURE PLATFORM TO TRUE NORTH
1	1	S SET UP PUNCH TAPE READER
4	3	S SOLDER OR DESOLDER COAXIAL CONNECTORS
4	3	S SOLDER OR DESOLDER MULTIPIN CONNECTORS
7	8	S SOLDER OR DESOLDER PC BOARDS
7	11	S SOLDER OR DESOLDER TERMINAL CONNECTIONS
-	1	S SPIN POD
1	-	S STOW/UNSTOW ANTENNA
-	1	S USE ARC-164 TEST SET TO INTERCONNECT SYSTEM
-	1	S USE A-FRAME POD HANDLING FIXTURE

A	B	SKILLS
-	1	S USE ALIGNMENT TOOLS
-	1	S USE AMP/DET TEST SET
-	1	S USE AN/USM-427 TO TEST MOCK-UP AFTER REPAIR
2	1	S USE ANGLE POSITION INDICATOR
-	1	S USE ANTENNA SHIELD
-	2	S USE ANTENNA SIMULATOR TEST SET
-	4	S USE APM-137 TEST SET
-	3	S USE APM-239A TEST SET
-	3	S USE APM-245 TEST SET
-	1	S USE ARC-164 LRUS
4	2	S USE ATSCS
1	-	S USE ATTENUATORS TO SIMULATE LRU SIGNALS
1	3	S USE AUDIO OSCILLATOR
-	1	S USE AUTOMATIC PRESELECTOR
-	2	S USE AUXILIARY POWER SUPPLY
1	-	S USE BIDEC CONVERTER TO MEASURE ANGLE OF ANTENNA
-	1	S USE BOARD EXTRACTOR
1	-	S USE BORESIGHT TELESCOPE TO ALIGN RANGE
-	1	S USE BOTTLE TO COLLECT SAMPLE
1	1	S USE BUILDING SUPPLIES TO FABRICATE FRAME
1	-	S USE CALIBRATION MONITOR UNIT
1	-	S USE CALIBRATION STANDARD SET
2	-	S USE CAPACITOR SUBSTITUTION BOX
3	3	S USE CAPACITOR TESTER
1	1	S USE CART TO TRANSPORT BOTTLES
2	2	S USE CETP
1	-	S USE CHAMBER TO ABSORB RF WHEN TRANSMITTING INDOORS
-	1	S USE CHECKSUMS TO VERIFY CHANGED DATA IS CORRECT
1	-	S USE CLINOMETER TO CALIBRATE RANGE
57	96	S USE COMMON HANDTOOLS
1	-	S USE COMMUNICATION COMMANDS
1	1	S USE COMPRESSED AIR TO PURGE LINES
1	-	S USE COMPUTER SIMULATOR
1	1	S USE COMPUTER TO VERIFY MEASUREMENT AGAINST UPPER AND LOWER
-	1	S USE CONTROL BOX TESTER TO APPLY POWER TO POD
-	2	S USE COUPLER TEST SET
1	-	S USE CW POWER METER
-	2	S USE DC BLOCK
1	-	S USE DC RESTORER
-	1	S USE DEARATION CART TO DEAIR TRANSMITTERS
1	-	S USE DECADE REGISTER BOX
1	-	S USE DIGITAL COMPUTER COMPLEX
3	4	S USE DIGITAL LOGIC PROBE
1	1	S USE DIGITAL WORD GENERATOR FOR CONTINUITY TEST AND DIGITAL
1	-	S USE DIGITIZER
-	2	S USE DIP METER TO CENTER FREQUENCIES DURING VCO ALIGNMENT
1	-	S USE DIP/IC CLIPS
-	1	S USE DIRECTIONAL COUPLER
-	2	S USE DISK DRIVE MAINTENANCE KIT
-	1	S USE DISK TO LOAD PROGRAM

A	B	SKILLS
1	2	S USE DISTORTION ANALYZER
-	1	S USE DRAIN AND FILL CART TO REPLACE COOLANT
1	1	S USE DTS TO PERFORM SELF-TEST
-	1	S USE ECM POD INDOOR COOLANT UNIT
-	1	S USE ECM POD MLV
2	-	S USE ESS
-	1	S USE EXTENDERS TO FACILITATE TROUBLESHOOTING
-	2	S USE FAULT ISOLATION TEST METER
1	-	S USE FIELD STRENGTH TESTER
2	-	S USE FILL STATION
-	2	S USE FIXED ATTENUATORS
-	1	S USE FORCED AIR TO CLEAN FILTERS
7	22	S USE FREQUENCY COUNTER
-	3	S USE FREQUENCY METER
-	6	S USE FREQUENCY RESPONSE TEST SET
1	-	S USE GAGE ON INTERFACE PANEL
-	1	S USE HARMONIZATION MODE ON CPINs
1	1	S USE HEAD DEMAGNETIZER
-	3	S USE HEADSET
1	1	S USE HEAT BLANKETS TO BAKE BOTTLE
1	1	S USE HEAT GUN AND HEAT SHRINK TO INSULATE WIRES
-	2	S USE HF TEST SET
-	1	S USE HIGH PASS FILTERS
-	2	S USE HIGH POWER TERMINATION TO ABSORB HIGH POWER
-	3	S USE HIGH VOLTAGE PROBE
1	3	S USE HOIST
1	-	S USE HOLDING FIXTURE TO SECURE MOUNT AND GIMBAL SUPPORT UNIT
-	1	S USE HVPS TEST SET
-	1	S USE HY-POT TEST STAND
1	2	S USE IC CHIP REMOVAL TOOL
1	-	S USE IC EXTENDER
1	1	S USE IEEE BUS MONITOR/ANALYZER TO VERIFY IEEE LINES
1	-	S USE ISOLATOR
1	-	S USE JUMPER LEADS
3	-	S USE KEYBOARD
-	1	S USE KITS TO PROGRAM GACT
1	-	S USE LIQUID NITROGEN TO FILL COLD TRAP
1	-	S USE LOADS TO ATTENUATE SIGNALS
2	-	S USE LOGIC ANALYZER
-	2	S USE LOGIC CURVE TRACER
2	2	S USE LOGIC PROBE
2	-	S USE LOGIC PULSER
-	1	S USE LOW PASS FILTERS
-	1	S USE LRUs
1	-	S USE MCC
1	1	S USE MEASUREMENT DEVICE
1	3	S USE MICROWAVE PULSE COUNTER
1	-	S USE MICROWAVE TEST CART
-	1	S USE MODULATORS
-	2	S USE MONITOR CART ASSEMBLY
-	1	S USE MULTIBAND CONTROL UNIT

A	B	SKILLS
1	1	S USE MULTIFUNCTION UNIT TO PRODUCE AND MEASURE VIDEO AND PULSE
31	56	S USE MULTIMETER
-	1	S USE MX-9533 TEST ADAPTER
1	1	S USE NITROGEN BOTTLE TO SUPPLY GASES
1	1	S USE NITROGEN TO PURGE LINES
-	1	S USE OSCILLATOR TO PROVIDE 2 MHZ REFERENCE
21	47	S USE OSCILLOSCOPE
-	2	S USE OUTPUT POWER METER
-	2	S USE PATEC
1	1	S USE PEAK POWER METER
1	-	S USE PECULIAR TEST EQUIPMENT BAY
1	1	S USE PHASE ANGLE METER TO VERIFY AC POWER SUPPLY
1	-	S USE PHOTOMETER
-	1	S USE POD DOLLY AND CRADLE
-	1	S USE POWER AND FEED THROUGH PANEL
-	1	S USE POWER DIVIDER
1	-	S USE POWER HEADS FOR IMPEDANCE MATCHING
2	9	S USE POWER METER
2	3	S USE POWER SUPPLY
1	1	S USE POWER TOOLS
-	1	S USE PRESSURE GAUGE TO MEASURE RESERVOIR PRESSURE
1	1	S USE PRESSURE REGULATOR TO CONTROL PRESSURE
1	1	S USE PRESSURIZATION TEST SET
1	-	S USE PRINTER TO PRINT CIIL
1	2	S USE PROBES
1	4	S USE PULSE/FUNCTION GENERATOR
-	1	S USE PYLON INTERFACE BOX
-	1	S USE RADIO TEST SET
1	-	S USE REFERENCE PLATE TO DETERMINE TRUE ZERO
7	3	S USE REFLECTOMETER
1	1	S USE REGULATORS TO CONTROL PRESSURE
-	2	S USE RF DETECTOR
-	1	S USE RF DIRECTIONAL COUPLERS
-	2	S USE RF GENERATOR
1	1	S USE RF ID TO VERIFY VARIOUS RF PATHS
2	6	S USE RF POWER METER
1	-	S USE RF PULSE GENERATOR TO SET UP SQUARE WAVE
-	3	S USE RF SIGNAL GENERATOR
-	1	S USE RMS VOLTMETER TO MEASURE NOISE LEVELS
-	1	S USE ROLLERS
1	-	S USE SAFETY EQUIPMENT TO HANDLE LIQUID NITROGEN
1	1	S USE SAFETY WIRE PLIERS
2	1	S USE SCALER NETWORK ANALYZER
-	1	S USE SCRAPER
2	14	S USE SIGNAL GENERATOR
1	-	S USE SIGNATURE ANALYZER
1	1	S USE SIGNATURE MULTIMETER TO VERIFY IEEE LINES
1	-	S USE SOLDERING STATION
-	2	S USE SOURCE CART ASSEMBLY
6	6	S USE SPECIAL INSERTION/EXTRACTION TOOLS
6	14	S USE SPECTRUM ANALYZER
-	1	S USE ST-21 TEST SET

A	B	SKILLS
1	1	S USE STATION JACKS TO MOVE STATION
-	2	S USE STEP ATTENUATOR
-	1	S USE SWEEP OSCILLATOR
1	1	S USE SWITCHING ID TO SWITCH SIGNALS THROUGHOUT PATHS IN TEST
1	1	S USE SWR METER TO VERIFY TWT AMPLIFIER
1	-	S USE SYNCH SWEEPER TO READ SWEEPER FREQUENCY
3	1	S USE SYNCHRO BRIDGE
1	2	S USE SYNCHRO STANDARD
1	4	S USE SYNTHESIZED SWEEPER
-	1	S USE TACAN R/T TO TEST TACAN PORTION OF UHF BLADE ANTENNA
-	3	S USE TACAN TEST SETS
1	-	S USE TAPE MEASURE
-	1	S USE TAPES TO LOAD TEST PROGRAM
-	2	S USE TASU
1	-	S USE TELESCOPE MOUNT TO SECURE TELESCOPE
1	1	S USE TENSION GAUGE
-	2	S USE TEST ADAPTER
1	-	S USE TEST LEADS
-	1	S USE TEST SETS
1	1	S USE TEST TAPE
2	-	S USE THEODOLITE
-	1	S USE THRULINE WATTMETER
-	1	S USE TIME BASE AND DELAY GENERATOR
-	2	S USE TIME INTERVAL COUNTER
1	1	S USE TIMER COUNTER TO VERIFY RISE/FALL/PULSE/RF SIGNALS
5	13	S USE TORQUE WRENCH
2	2	S USE TRACKING TOOLS
-	1	S USE TTU-205 TO PRESSURIZE LRUS
-	1	S USE TUBE TESTER
-	1	S USE TUNABLE BANPASS FILTER
1	1	S USE TWT AMPLIFIER FOR SELF-VERIFICATION
1	1	S USE TWT FOR VERIFY SELF-VERIFICATION
-	1	S USE ULTRASONIC CLEANER TO CLEAN FILTERS
1	-	S USE UNIVERSAL COUNTER
-	1	S USE UTILITY PROGRAM TO EDIT DISKS
-	1	S USE VACUUM FILL UNIT TO ADD COOLANT
2	2	S USE VACUUM GAUGE
-	1	S USE VARIABLE ATTENUATOR
1	1	S USE VARIAC TO ADJUST AC VOLTAGE
5	-	S USE VECTOR VOLTMETER
-	1	S USE VERTICAL AMPLIFIER
-	1	S USE VOLTAGE VARIABLE ATTENUATORS
1	-	S USE VOLTMETER TO ADJUST PHASING
-	2	S USE WATTMETER
1	-	S USE WAVEFORM ANALYZER TO MEASURE PULSE CHARACTERISTICS
-	1	S USE WORKBENCH TO HOLD POD IN PLACE
-	1	S USE 20DB DIRECTIONAL COUPLER
-	2	S USE 28VDC POWER SUPPLY
-	1	S USE 500HM DUMMY LOAD
1	1	S VERIFY ALIGNMENT OF RATE TABLES
1	-	S VERIFY MASTER FREQUENCY GENERATOR OUTPUT LEVELS
1	-	S VERIFY POWER AND PHASING

A	B	KNOWLEDGE
54	88	K ANNOTATE FORMS
13	24	K APPLY AC CIRCUIT THEORY OF OPERATION
3	6	K APPLY AC GENERATOR THEORY OF OPERATION
4	6	K APPLY AC MOTOR THEORY OF OPERATION
1	1	K APPLY ALTERNATOR THEORY OF OPERATION
3	7	K APPLY AM MODULATION TRANSMITTER THEORY OF OPERATION
3	7	K APPLY AM RECEIVER THEORY OF OPERATION
1	3	K APPLY ANTENNA THEORY OF OPERATION
2	5	K APPLY APPROXIMATION A/D CONVERTER THEORY OF OPERATION
1	-	K APPLY ATLAS FOR TEST STATION MAINTENANCE
-	2	K APPLY BASIC DIGITAL PRINCIPLES
1	4	K APPLY BASIC MATH PRINCIPLES
-	3	K APPLY BASIC RF PRINCIPLES
3	13	K APPLY BIPOLEAR JUNCTION TRANSISTOR THEORY OF OPERATION
12	12	K APPLY CAPACITOR THEORY OF OPERATION
1	1	K APPLY CENPAC THEORY OF OPERATION
1	7	K APPLY CHOPPER (SYNCHROUS VIBRATOR) THEORY OF OPERATION
2	12	K APPLY CLAMPER CIRCUIT THEORY OF OPERATION
6	6	K APPLY CMOS THEORY OF OPERATION
7	7	K APPLY COMBINATIONAL LOGIC CIRCUIT THEORY OF OPERATION
3	9	K APPLY COMPUTER MEMORY THEORY OF OPERATION
4	3	K APPLY COMPUTER PERIPHERAL DEVICE THEORY OF OPERATION
5	5	K APPLY COMPUTER THEORY OF OPERATION
1	5	K APPLY CRT THEORY OF OPERATION
13	28	K APPLY DC CIRCUIT THEORY OF OPERATION
2	2	K APPLY DC GENERATOR THEORY OF OPERATION
3	3	K APPLY DC MOTOR THEORY OF OPERATION
1	8	K APPLY DISPLAY TUBE THEORY OF OPERATION
1	1	K APPLY ELECTROMECHANICAL SWITCH THEORY OF OPERATION
2	6	K APPLY ELECTRON TUBE AMPLIFIER THEORY OF OPERATION
1	3	K APPLY ELECTRON TUBE THEORY OF OPERATION
25	52	K APPLY ESD PRECAUTIONS
8	12	K APPLY FLIP-FLOP THEORY OF OPERATION
3	5	K APPLY FM RECEIVER THEORY OF OPERATION
3	5	K APPLY FM TRANSMITTER THEORY OF OPERATION
5	12	K APPLY FREQUENCY SENSITIVE FILTER THEORY OF OPERATION
4	12	K APPLY INDUCTOR THEORY OF OPERATION
-	1	K APPLY INFORMATION ON CHECKLIST
2	1	K APPLY INFORMATION PRESENTED ON DISPLAY
8	18	K APPLY INTEGRATED CIRCUIT THEORY OF OPERATION
4	5	K APPLY JFET THEORY OF OPERATION
3	5	K APPLY LCD THEORY OF OPERATION
6	13	K APPLY LED THEORY OF OPERATION
8	17	K APPLY LIMITER CIRCUIT DIODE THEORY OF OPERATIONS
9	17	K APPLY LIMITER CIRCUIT TRANSISTOR THEORY OF OPERATION
8	15	K APPLY LIMITER CIRCUIT ZENER DIODE THEORY OF OPERATION
8	13	K APPLY LOGIC CIRCUIT COUNTER THEORY OF OPERATION
8	13	K APPLY LOGIC CIRCUIT REGISTER THEORY OF OPERATION
11	12	K APPLY LRU THEORY OF OPERATION
1	1	K APPLY MAGNETIC AMPLIFIER THEORY OF OPERATION
9	17	K APPLY MAIN LOGIC GATE THEORY OF OPERATION
1	4	K APPLY METER MOVEMENT THEORY OF OPERATION
3	6	K APPLY MICROPROCESSOR THEORY OF OPERATION

A	B	KNOWLEDGE
4	11	K APPLY MICROWAVE OSCILLATOR OR AMPLIFIER THEORY OF OPERATION
4	6	K APPLY MOSFET THEORY OF OPERATION
3	7	K APPLY MULTIVIBRATOR CIRCUIT THEORY OF OPERATION
7	14	K APPLY OPERATIONAL AMPLIFIER THEORY OF OPERATION
52	84	K APPLY OPSEC, COMSEC, AND PHYSICAL SECURITY PRECAUTIONS
6	10	K APPLY OSCILLATOR CIRCUIT THEORY OF OPERATION
4	6	K APPLY PHOTOSENSITIVE DEVICE THEORY OF OPERATION
-	2	K APPLY PIN DIODE THEORY
-	1	K APPLY POD THEORY OF OPERATION
7	14	K APPLY POWER SUPPLY FILTER THEORY OF OPERATION
7	13	K APPLY POWER SUPPLY RECTIFIER THEORY OF OPERATION
8	16	K APPLY POWER SUPPLY THEORY OF OPERATION
-	1	K APPLY PROGRAMMABLE D/A CONVERTER THEORY
-	4	K APPLY PROPER CARE OF DISKS
3	6	K APPLY PULSE MODULATION RECEIVER THEORY OF OPERATION
3	9	K APPLY PULSE MODULATION TRANSMITTER THEORY OF OPERATION
1	-	K APPLY RADAR PRINCIPLES
1	7	K APPLY RAMP A/D CONVERTER THEORY OF OPERATION
6	13	K APPLY RCL CIRCUIT THEORY OF BASIC OPERATION
4	9	K APPLY RCL CIRCUIT THEORY OF RESONANT OPERATION
10	22	K APPLY RELAY THEORY OF OPERATION
16	20	K APPLY RESISTOR THEORY OF OPERATION
3	6	K APPLY RESONANT CAVITY THEORY OF OPERATION
1	1	K APPLY RF SAFETY PRECAUTIONS
1	-	K APPLY SCIENTIFIC NOTATION
5	11	K APPLY SCR THEORY OF OPERATION
65	100	K APPLY SHOP SAFETY PROCEDURES
1	-	K APPLY SIMULATED SYNCHRO THEORY OF OPERATION
2	2	K APPLY SINGLE SIDEBAND RECEIVER THEORY OF OPERATION
3	4	K APPLY SINGLE SIDEBAND TRANSMITTER THEORY OF OPERATION
5	4	K APPLY SOLENOID THEORY OF OPERATION
11	24	K APPLY SOLID STATE DIODE THEORY OF OPERATION
1	4	K APPLY SPEAKER THEORY OF OPERATION
-	3	K APPLY SWITCH THEORY OF OPERATION
-	1	K APPLY SWITCHBOARD TROUBLESHOOTING CHART
5	6	K APPLY SYNCHRO-SERVO THEORY OF OPERATION
3	-	K APPLY SYSTEM INTEGRATION THEORY OF OPERATION
3	3	K APPLY SYSTEM THEORY OF OPERATION
71	104	K APPLY TECHNICAL DATA
6	10	K APPLY THREE-PHASE TRANSFORMER THEORY OF OPERATION
2	4	K APPLY TRANSDUCER THEORY OF OPERATION
7	16	K APPLY TRANSFORMER THEORY OF OPERATION
4	8	K APPLY TRANSISTOR AMPLIFIER COUPLING CIRCUIT THEORY OF OPERATION
3	9	K APPLY TRANSISTOR AMPLIFIER STABILIZATION CIRCUIT THEORY OF OPERATION
7	15	K APPLY TRANSISTOR AMPLIFIER CIRCUIT THEORY OF OPERATION
2	12	K APPLY TRANSMISSION LINE THEORY OF OPERATION
5	13	K APPLY TTL THEORY OF OPERATION
5	6	K APPLY TUNNEL DIODE THEORY OF OPERATION
3	3	K APPLY UJT THEORY OF OPERATION
1	-	K APPLY VARIOUS CIIL COMMANDS

A	B	KNOWLEDGE
-	1	K APPLY VOLTAGE DIVIDER THEORY OF OPERATION
7	16	K APPLY VOLTAGE REGULATOR THEORY OF OPERATION
5	4	K APPLY WAVEGUIDE THEORY OF OPERATION
5	10	K APPLY WAVESHAPING CIRCUIT THEORY OF OPERATION
1	6	K APPLY WEIGHTED RESISTOR D/A CONVERTER THEORY OF OPERATION
7	13	K APPLY ZENER DIODE THEORY OF OPERATION
-	1	K CALCULATE PERCENTAGE OF MODULATION
1	-	K CHECK ECHO ABSORBING SCREEN FOR PROPER POSITIONING
1	1	K COMPLETE MOBILITY FORM/LISTS
1	1	K COMPUTE MAGNETIC NORTH
-	1	K COMPUTE RF GAIN
1	-	K CONVERT DEGREES, MINUTES, AND SECONDS TO DECIMAL
1	-	K DECODE PROGRAM
1	1	K DETERMINE EXTERNAL EQUIPMENT REQUIRED
1	-	K DETERMINE F-111D LOCAL OSCILLATOR AND TWT OUTPUT
-	1	K DETERMINE FILES THAT MAKE UP DATA DISK
1	-	K DETERMINE HOW A BREAK IN WIRING WILL AFFECT LRU OPERATION
-	1	K DETERMINE JAMMING TECHNIQUES REQUIRED
14	24	K DETERMINE MEASUREMENT DEVICE REQUIRED FOR TROUBLESHOOTING
-	1	K DETERMINE ONES COMPLEMENTS OF PRINTED FAIL
-	1	K DETERMINE OPERATING FREQUENCIES
2	2	K DETERMINE POWER REQUIREMENTS
1	1	K DETERMINE PROPER LOCATION OF EQUIPMENT OR PALLET
-	1	K DETERMINE STATUS OF DESICCANT
-	1	K DETERMINE THE SIZE OF WATT CRYSTAL NEEDED
1	1	K DETERMINE TRUE NORTH
-	1	K DETERMINE VARIOUS PROGRAMS THAT CAN BE USED FOR EDITING
1	1	K DETERMINE WHERE TO INTERFACE NITROGEN WITH TEST STATION
8	11	K DETERMINE WHETHER MALFUNCTION IS IN TEST STATION, LRU, OR ADAPTER
8	5	K DETERMINE WHICH PORTION OF PROGRAM OR TEST TO EXECUTE
-	1	K DETERMINE WHICH PUSH-BUTTON SWITCHES REQUIRE AN ADAPTER CAP
-	1	K DETERMINE WHICH TRU OR SRU REQUIRES CALIBRATION
1	-	K DISTINGUISH BETWEEN HIGH AND LOW PITCH ON DIAPHRAGM VACUUM
1	-	K DOCUMENT HAZARDOUS WASTE LEVELS
2	6	K FOLLOW INFORMATION PRESENTED ON SCREEN
-	1	K FOLLOW OPTIONS ON MAIN MENU
-	1	K IDENTIFY CHAFFING CHARACTERISTICS
-	1	K IDENTIFY PROPER CONTROL PANEL SWITCH CALLED OUT IN SCHEMATICS
1	-	K IDENTIFY PROPER STORAGE CONTAINER FOR CONTAMINANTS
1	-	K IDENTIFY UPPER AND LOWER LEVEL RANGE TOLERANCES
-	1	K IDENTIFY VIDEO VOLTAGE SIGNALS
1	1	K INSPECT GENERATORS
1	1	K INSPECT PALLET
-	2	K INTERPRET API

A	B	KNOWLEDGE
-	2	K INTERPRET BIPOLAR JUNCTION TRANSISTOR SPECIFICATIONS
-	1	K INTERPRET ELECTRON TUBE SPECIFICATIONS
1	-	K INTERPRET FLAG INDICATIONS ON PCM
1	1	K INTERPRET GAUGES TO DETERMINE PRESSURE LOSS
-	3	K INTERPRET INTEGRATED CIRCUIT SPECIFICATIONS
1	1	K INTERPRET PRINTOUT
-	2	K INTERPRET PSVM
1	4	K INTERPRET RESISTOR COLOR CODES
-	1	K INTERPRET RF SPECIFICATIONS
-	2	K INTERPRET SOLID STATE DIODE COLOR CODES
-	2	K INTERPRET SOLID STATE DIODE SPECIFICATIONS
1	-	K INTERPRET STATION RESPONSES
8	12	K ISOLATE FAULTY AC CIRCUITS
1	2	K ISOLATE FAULTY AC GENERATORS
3	6	K ISOLATE FAULTY AC MOTORS
2	5	K ISOLATE FAULTY AM RECEIVERS
3	6	K ISOLATE FAULTY AM TRANSMITTERS
-	2	K ISOLATE FAULTY ANTENNAS
1	4	K ISOLATE FAULTY APPROXIMATION A/D CONVERTERS
2	11	K ISOLATE FAULTY BIPOLAR JUNCTION TRANSISTORS
10	11	K ISOLATE FAULTY CAPACITORS
-	6	K ISOLATE FAULTY CHOPPERS (SYNCHRONOUS VIBRATORS)
1	11	K ISOLATE FAULTY CLAMPER CIRCUITS
4	4	K ISOLATE FAULTY CMOS
6	6	K ISOLATE FAULTY COMBINATIONAL LOGIC CIRCUITS
3	4	K ISOLATE FAULTY COMPUTER MAJOR UNITS
2	8	K ISOLATE FAULTY COMPUTER MEMORIES
4	4	K ISOLATE FAULTY COMPUTER PERIPHERAL DEVICES
2	2	K ISOLATE FAULTY COMPUTER SUBASSEMBLIES
-	1	K ISOLATE FAULTY COOLANT PUMPS
-	4	K ISOLATE FAULTY CRT
9	14	K ISOLATE FAULTY DC CIRCUITS
2	2	K ISOLATE FAULTY DC GENERATORS
2	2	K ISOLATE FAULTY DC MOTORS
-	7	K ISOLATE FAULTY DISPLAY TUBES
2	6	K ISOLATE FAULTY ELECTRON TUBE AMPLIFIERS
-	2	K ISOLATE FAULTY ELECTRON TUBES
7	11	K ISOLATE FAULTY FLIP-FLOPS
3	4	K ISOLATE FAULTY FM MODULATION TRANSMITTERS
2	4	K ISOLATE FAULTY FM RECEIVERS
4	11	K ISOLATE FAULTY FREQUENCY SENSITIVE FILTERS
3	11	K ISOLATE FAULTY INDUCTORS
7	17	K ISOLATE FAULTY INTEGRATED CIRCUITS
3	4	K ISOLATE FAULTY JFETS
2	4	K ISOLATE FAULTY LCDs
5	10	K ISOLATE FAULTY LEDs
7	15	K ISOLATE FAULTY LIMITER CIRCUIT DIODES
7	13	K ISOLATE FAULTY LIMITER CIRCUIT ZENER DIODES
8	15	K ISOLATE FAULTY LIMITER TRANSISTOR CIRCUITS
7	12	K ISOLATE FAULTY LOGIC COUNTERS
8	16	K ISOLATE FAULTY MAIN LOGIC GATES
1	4	K ISOLATE FAULTY METER MOVEMENTS
3	6	K ISOLATE FAULTY MICROPROCESSORS

A	B	KNOWLEDGE		
4	11	K	ISOLATE FAULTY MICROWAVE OSCILLATORS OR AMPLIFIERS	
3	5	K	ISOLATE FAULTY MOSFETs	
2	6	K	ISOLATE FAULTY MULTIVIBRATOR CIRCUITS	
6	13	K	ISOLATE FAULTY OPERATIONAL AMPLIFIERS	
5	8	K	ISOLATE FAULTY OSCILLATOR CIRCUITS	
3	5	K	ISOLATE FAULTY PHOTOSENSITIVE DEVICES	
8	16	K	ISOLATE FAULTY POWER SUPPLIES	
6	13	K	ISOLATE FAULTY POWER SUPPLY FILTERS	
6	12	K	ISOLATE FAULTY POWER SUPPLY RECTIFIERS	
2	5	K	ISOLATE FAULTY PULSE MODULATION RECEIVERS	
3	8	K	ISOLATE FAULTY PULSE MODULATION TRANSMITTERS	
-	6	K	ISOLATE FAULTY RAMP A/D CONVERTERS	
4	11	K	ISOLATE FAULTY RCL CIRCUITS	
7	12	K	ISOLATE FAULTY REGISTER LOGIC CIRCUITS	
10	20	K	ISOLATE FAULTY RELAYS	
14	17	K	ISOLATE FAULTY RESISTORS	
2	5	K	ISOLATE FAULTY RESONANT CAVITIES	
4	9	K	ISOLATE FAULTY SCRs	
2	2	K	ISOLATE FAULTY SINGLE SIDEBAND RECEIVERS	
3	3	K	ISOLATE FAULTY SINGLE SIDEBAND TRANSMITTERS	
1	-	K	ISOLATE FAULTY SIMULATED SYNCHROS	
4	3	K	ISOLATE FAULTY SOLENOIDS	
10	21	K	ISOLATE FAULTY SOLID STATE DIODES	
-	2	K	ISOLATE FAULTY SPEAKERS	
-	1	K	ISOLATE FAULTY SWITCHES	
2	5	K	ISOLATE FAULTY SYNCHROS-SERVOS	
4	9	K	ISOLATE FAULTY THREE-PHASE TRANSFORMERS	
1	3	K	ISOLATE FAULTY TRANSDUCERS	
6	15	K	ISOLATE FAULTY TRANSFORMERS	
3	8	K	ISOLATE FAULTY TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS	
5	14	K	ISOLATE FAULTY TRANSISTOR AMPLIFIER CIRCUITS	
3	7	K	ISOLATE FAULTY TRANSISTOR AMPLIFIER COUPLING CIRCUITS	
1	11	K	ISOLATE FAULTY TRANSMISSION LINES	
4	12	K	ISOLATE FAULTY TTLs	
4	4	K	ISOLATE FAULTY TUNNEL DIODES	
2	2	K	ISOLATE FAULTY UJTs	
6	12	K	ISOLATE FAULTY VOLTAGE REGULATORS	
5	5	K	ISOLATE FAULTY WAVEGUIDES	
4	9	K	ISOLATE FAULTY WAVESHAPING CIRCUITS	
-	5	K	ISOLATE FAULTY WEIGHTED RESISTOR D/A CONVERTERS	
6	11	K	ISOLATE FAULTY ZENER DIODES	
2	4	K	ISOLATE MALFUNCTIONS IN TEST STATION THROUGH INTERCONNECTS OF AN INSTALLED LRU	
1	1	K	LOCATE PINS IN CANNON PLUGS	
1	1	K	MANIPULATE COMPUTER PROGRAMS	
-	1	K	MONITOR BAND ATTENUATION VALUES	
1	-	K	MONITOR TEST POINTS	
1	9	K	PERFORM BASIC AC CIRCUIT CALCULATIONS	
2	10	K	PERFORM BASIC DC CIRCUIT CALCULATIONS	
2	8	K	PERFORM BINARY CONVERSIONS	
1	6	K	PERFORM BINARY MATH OPERATION	
-	1	K	PERFORM CAPACITOR CALCULATIONS	

A	B	KNOWLEDGE
-	1	K PERFORM FREQUENCY NOTATIONS
-	1	K PERFORM FREQUENCY SENSITIVE FILTER CALCULATIONS
3	5	K PERFORM HEXADECIMAL CONVERSIONS
1	2	K PERFORM HEXADECIMAL MATH OPERATION
-	2	K PERFORM INDUCTOR CALCULATIONS
3	5	K PERFORM OCTAL CONVERSIONS
1	3	K PERFORM OCTAL MATH OPERATION
-	6	K PERFORM RCL CIRCUIT CALCULATIONS
-	3	K PERFORM TRANSFORMER CALCULATIONS
-	3	K PERFORM TRANSMISSION LINE CALCULATIONS
1	4	K PERFORM TRANSMISSION LINE MEASUREMENTS
-	3	K PERFORM TRANSMISSION POWER CALCULATIONS
-	1	K PROCESS COOLANT SAMPLE
-	1	K READ DB INDICATIONS
23	36	K RESEARCH MANUALS TO DETERMINE FAULT ISOLATION PROCEDURES
-	1	K SEAT PNEUMATIC HOSES
-	1	K SIMPLIFY EXPRESSIONS BY USING BOOLEAN ALGEBRA
25	37	K TRACE SIGNALS THROUGH INTERCONNECTS
9	13	K TROUBLESHOOT AC CIRCUITS
1	3	K TROUBLESHOOT AC GENERATORS
2	6	K TROUBLESHOOT AC MOTORS
2	2	K TROUBLESHOOT AM RECEIVER CIRCUITS
2	3	K TROUBLESHOOT AM TRANSMITTERS
-	1	K TROUBLESHOOT ANTENNAS
1	2	K TROUBLESHOOT APPROXIMATION A/D CONVERTERS
2	6	K TROUBLESHOOT BIPOLAR JUNCTION TRANSISTORS
-	4	K TROUBLESHOOT CHOPPERS (SYNCHROUS VIBRATORS)
1	6	K TROUBLESHOOT CLAMPER CIRCUITS
3	5	K TROUBLESHOOT CMOS LOGIC FAMILIES
4	4	K TROUBLESHOOT COMBINATIONAL LOGIC CIRCUITS
1	5	K TROUBLESHOOT COMPUTER MAJOR UNITS
1	7	K TROUBLESHOOT COMPUTER MEMORIES
1	4	K TROUBLESHOOT COMPUTER PERIPHERAL DEVICES
-	3	K TROUBLESHOOT COMPUTER SUBASSEMBLIES OR CIRCUITS
8	16	K TROUBLESHOOT DC CIRCUITS
1	1	K TROUBLESHOOT DC GENERATORS
1	2	K TROUBLESHOOT DC MOTORS
-	2	K TROUBLESHOOT ELECTRON TUBE AMPLIFIERS
4	6	K TROUBLESHOOT FLIP-FLOPS
2	3	K TROUBLESHOOT FM MODULATION TRANSMITTERS
2	3	K TROUBLESHOOT FM RECEIVER CIRCUITS
3	4	K TROUBLESHOOT FREQUENCY SENSITIVE FILTERS
3	7	K TROUBLESHOOT INDUCTORS
6	10	K TROUBLESHOOT LIMITER CIRCUIT DIODES
7	10	K TROUBLESHOOT LIMITER CIRCUIT TRANSISTORS
6	9	K TROUBLESHOOT LIMITER CIRCUIT ZENER DIODES
4	8	K TROUBLESHOOT LOGIC COUNTERS
4	8	K TROUBLESHOOT LOGIC REGISTERS
5	7	K TROUBLESHOOT MAIN LOGIC GATES
1	2	K TROUBLESHOOT METER MOVEMENTS
-	4	K TROUBLESHOOT MICROPROCESSOR-CONTROLLED SYSTEMS
-	4	K TROUBLESHOOT MICROWAVE OSCILLATORS AND AMPLIFIERS

A	B	KNOWLEDGE
5	6	K TROUBLESHOOT OPERATIONAL AMPLIFIERS
1	3	K TROUBLESHOOT PHOTOSENSITIVE DEVICES
5	10	K TROUBLESHOOT POWER SUPPLY CIRCUITS
5	7	K TROUBLESHOOT POWER SUPPLY FILTERS
5	8	K TROUBLESHOOT POWER SUPPLY RECTIFIERS
3	7	K TROUBLESHOOT PULSE MODULATION TRANSMITTER
-	3	K TROUBLESHOOT RAMP A/D CONVERTERS
3	6	K TROUBLESHOOT RCL CIRCUITS
4	11	K TROUBLESHOOT RELAYS
2	3	K TROUBLESHOOT RESONANT CAVITIES
2	2	K TROUBLESHOOT SINGLE SIDEBAND RECEIVERS
2	2	K TROUBLESHOOT SINGLE SIDEBAND TRANSMITTERS
2	1	K TROUBLESHOOT SOLENOIDS
-	1	K TROUBLESHOOT SPEAKERS
2	3	K TROUBLESHOOT SYNCHROS-SERVOS
1	2	K TROUBLESHOOT TRANSDUCERS
3	9	K TROUBLESHOOT TRANSFORMERS
1	5	K TROUBLESHOOT TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS
3	7	K TROUBLESHOOT TRANSISTOR AMPLIFIER CIRCUITS
2	4	K TROUBLESHOOT TRANSISTOR AMPLIFIER COUPLING CIRCUITS
3	9	K TROUBLESHOOT TTL LOGIC FAMILIES
5	8	K TROUBLESHOOT VOLTAGE REGULATOR
1	4	K TROUBLESHOOT WAVE GENERATING CIRCUIT MULTIVIBRATORS
3	5	K TROUBLESHOOT WAVE GENERATING CIRCUIT OSCILLATORS
2	6	K TROUBLESHOOT WAVESHAPING CIRCUITS
-	3	K TROUBLESHOOT WEIGHTED RESISTOR D/A CONVERTERS
3	7	K TROUBLESHOOT 3-PHASE TRANSFORMERS
1	-	K TUNE ANTENNA RECEIVER TO TRANSMITTER SYNCHRONIZER
1	-	K USE BLOCK DIAGRAMS
3	3	K USE COMPUTER PROGRAMMING LANGUAGE
2	8	K USE METRIC NOTATION
-	1	K UTILIZE FLOW CHARTS
24	39	K UTILIZE SCHEMATIC DIAGRAMS
1	1	K VERIFY SUSPECTED FAULTY EQUIPMENT
17	28	K VERIFY SUSPECTED FAULTY SRUS
1	4	K WRITE OR DEBUG COMPUTER PROGRAMS

APPENDIX B
COMMON SKILL AND KNOWLEDGE REQUIREMENTS

All of the following skill and knowledge requirements are grouped into one of the four major areas, and all meet the established cutoff for commonality of ten percent. The actual number of times the requirement was listed is the total of both "A" and "B" shreds. A few items show up as a requirement more times than the total number of tasks for that major area. This is due to counting the tasks common to "A" and "B" shreds twice to show them as requirements for both shreds. These numbers correspond with the totals in Appendix A.

SKILLS APPLICABLE TO ALL TASKS

	# OF TIMES
USE COMMON HANDTOOLS	153
PERFORM VISUAL INSPECTION	119
USE MULTIMETER	87
CONNECT ADAPTERS AND CABLES	69
USE OSCILLOSCOPE	68
OPERATE TEST STATION	66
LOAD DISK/TAPE	19

SKILLS FOR ISOLATING MALFUNCTIONS

	# OF TIMES
USE FREQUENCY COUNTER	29
INSTALL EXTENDER BOARDS	23
USE SPECTRUM ANALYZER	20
USE SIGNAL GENERATOR	16
USE POWER METER	11
USE REFLECTOMETER	10
USE RF POWER METER	8
USE DIGITAL LOGIC PROBE	7
USE CAPACITOR TESTER	6
USE FREQUENCY RESPONSE TEST SET	6

SKILLS FOR REPAIR

	# OF TIMES
SOLDER OR DESOLDER TERMINAL CONNECTIONS	18
USE TORQUE WRENCH	18
SOLDER OR DESOLDER PC BOARDS	15
USE SPECIAL INSERTION/EXTRACTION TOOLS	12
SOLDER OR DESOLDER COAXIAL CONNECTORS	7
SOLDER OR DESOLDER MULTIPIN CONNECTORS	7

KNOWLEDGE APPLICABLE TO ALL TASKS		# OF TIMES
APPLY TECHNICAL DATA		175
APPLY SHOP SAFETY PROCEDURES		165
ANNOTATE FORMS		142
APPLY OPSEC, COMSEC, AND PHYSICAL SECURITY PRECAUTIONS		136
APPLY ESD PRECAUTIONS		77
KNOWLEDGE FOR ISOLATING MALFUNCTIONS		# OF TIMES
UTILIZE SCHEMATIC DIAGRAMS		63
TRACE SIGNALS THROUGH INTERCONNECTS		62
RESEARCH MANUALS TO DETERMINE FAULT ISOLATION PROCEDURES		59
VERIFY SUSPECTED FAULTY SRUS		45
APPLY DC CIRCUIT THEORY OF OPERATION		41
DETERMINE MEASUREMENT DEVICE REQUIRED FOR TROUBLESHOOTING		38
APPLY AC CIRCUIT THEORY OF OPERATION		37
APPLY RESISTOR THEORY OF OPERATION		36
APPLY SOLID STATE DIODE THEORY OF OPERATION		35
ISOLATE FAULTY RESISTORS		31
ISOLATE FAULTY SOLID STATE DIODES		31
ISOLATE FAULTY RELAYS		30
APPLY INTEGRATED CIRCUIT THEORY OF OPERATION		26
APPLY LIMITER CIRCUIT TRANSISTOR THEORY OF OPERATION		26
APPLY MAIN LOGIC GATE THEORY OF OPERATION		26
APPLY LIMITER CIRCUIT DIODE THEORY OF OPERATION		25
APPLY CAPACITOR THEORY OF OPERATION		24
APPLY POWER SUPPLY THEORY OF OPERATION		24
ISOLATE FAULTY INTEGRATED CIRCUITS		24
ISOLATE FAULTY MAIN LOGIC GATES		24
ISOLATE FAULTY POWER SUPPLIES		24
TROUBLESHOOT DC CIRCUITS		24
APPLY LIMITER CIRCUIT ZENER DIODE THEORY OF OPERATION		23
APPLY LRU THEORY OF OPERATION		23
APPLY TRANSFORMER THEORY OF OPERATION		23
APPLY VOLTAGE REGULATOR THEORY OF OPERATION		23
ISOLATE FAULTY DC CIRCUITS		23
ISOLATE FAULTY LIMITER TRANSISTOR CIRCUITS		23
APPLY RELAY THEORY OF OPERATION		22
APPLY TRANSISTOR AMPLIFIER CIRCUIT THEORY OF OPERATION		22
ISOLATE FAULTY LIMITER CIRCUIT DIODES		22
TROUBLESHOOT AC CIRCUITS		22
APPLY LOGIC CIRCUIT COUNTER THEORY OF OPERATION		21
APPLY LOGIC CIRCUIT REGISTER THEORY OF OPERATION		21
APPLY OPERATIONAL AMPLIFIER THEORY OF OPERATION		21
APPLY POWER SUPPLY FILTER THEORY OF OPERATION		21

KNOWLEDGE FOR ISOLATING MALFUNCTIONS (continued)	# OF TIME
ISOLATE FAULTY CAPACITORS	21
ISOLATE FAULTY TRANSFORMERS	21
APPLY FLIP-FLOP THEORY OF OPERATION	20
APPLY POWER SUPPLY RECTIFIER THEORY OF OPERATION	20
APPLY ZENER DIODE THEORY OF OPERATION	20
ISOLATE FAULTY AC CIRCUITS	20
ISOLATE FAULTY LIMITER CIRCUIT ZENER DIODES	20
APPLY LED THEORY OF OPERATION	19
APPLY RCL CIRCUIT THEORY OF BASIC OPERATION	19
DETERMINE WHETHER MALFUNCTION IS IN TEST STATION, LRU, OR ADAPTER	19
ISOLATE FAULTY LOGIC COUNTERS	19
ISOLATE FAULTY OPERATIONAL AMPLIFIERS	19
ISOLATE FAULTY POWER SUPPLY FILTERS	19
ISOLATE FAULTY REGISTER LOGIC CIRCUITS	19
ISOLATE FAULTY TRANSISTOR AMPLIFIER CIRCUITS	19
APPLY TTL THEORY OF OPERATION	18
ISOLATE FAULTY FLIP-FLOPS	18
ISOLATE FAULTY POWER SUPPLY RECTIFIERS	18
ISOLATE FAULTY VOLTAGE REGULATORS	18
APPLY FREQUENCY SENSITIVE FILTER THEORY OF OPERATION	17
ISOLATE FAULTY ZENER DIODES	17
TROUBLESHOOT LIMITER CIRCUIT TRANSISTORS	17
APPLY BIPOLAR JUNCTION TRANSISTOR THEORY OF OPERATION	16
APPLY INDUCTOR THEORY OF OPERATION	16
APPLY OSCILLATOR CIRCUIT THEORY OF OPERATION	16
APPLY SCR THEORY OF OPERATION	16
APPLY THREE-PHASE TRANSFORMER THEORY OF OPERATION	16
ISOLATE FAULTY TTLs	16
TROUBLESHOOT LIMITER CIRCUIT DIODES	16
APPLY MICROWAVE OSCILLATOR OR AMPLIFIER THEORY OF OPERATION	15
APPLY WAVESHAPE CIRCUIT THEORY OF OPERATION	15
ISOLATE FAULTY FREQUENCY SENSITIVE FILTERS	15
ISOLATE FAULTY LEDs	15
ISOLATE FAULTY MICROWAVE OSCILLATORS OR AMPLIFIERS	15
ISOLATE FAULTY RCL CIRCUITS	15
TROUBLESHOOT LIMITER CIRCUIT ZENER DIODES	15
TROUBLESHOOT POWER SUPPLY CIRCUITS	15
TROUBLESHOOT RELAYS	15
APPLY CLAMPER CIRCUIT THEORY OF OPERATION	14
APPLY COMBINATIONAL LOGIC CIRCUIT THEORY OF OPERATION	14
APPLY TRANSMISSION LINE THEORY OF OPERATION	14
ISOLATE FAULTY INDUCTORS	14
APPLY RCL CIRCUIT THEORY OF RESONANT OPERATION	13
ISOLATE FAULTY BIPOLAR JUNCTION TRANSISTORS	13
ISOLATE FAULTY OSCILLATOR CIRCUITS	13
ISOLATE FAULTY SCRs	13

KNOWLEDGE FOR ISOLATING MALFUNCTIONS (continued)	# OF TIMES
ISOLATE FAULTY THREE-PHASE TRANSFORMERS	13
ISOLATE FAULTY WAVESHAPING CIRCUITS	13
TROUBLESHOOT POWER SUPPLY RECTIFIERS	13
TROUBLESHOOT VOLTAGE REGULATOR	13
APPLY CMOS THEORY OF OPERATION	12
APPLY COMPUTER MEMORY THEORY OF OPERATION	12
APPLY PULSE MODULATION TRANSMITTER THEORY OF OPERATION	12
APPLY TRANSISTOR AMPLIFIER COUPLING CIRCUIT THEORY OF OPERATION	12
APPLY TRANSISTOR AMPLIFIER STABILIZATION CIRCUIT THEORY OF OPERATION	12
ISOLATE FAULTY CLAMPER CIRCUITS	12
ISOLATE FAULTY COMBINATIONAL LOGIC CIRCUITS	12
ISOLATE FAULTY TRANSMISSION LINES	12
PERFORM BASIC DC CIRCUIT CALCULATIONS	12
TROUBLESHOOT LOGIC COUNTERS	12
TROUBLESHOOT LOGIC REGISTERS	12
TROUBLESHOOT MAIN LOGIC GATES	12
TROUBLESHOOT POWER SUPPLY FILTERS	12
TROUBLESHOOT TRANSFORMERS	12
TROUBLESHOOT TTL LOGIC FAMILIES	12
APPLY SYNCHRO-SERVO THEORY OF OPERATION	11
APPLY TUNNEL DIODE THEORY OF OPERATION	11
ISOLATE FAULTY PULSE MODULATION TRANSMITTERS	11
ISOLATE FAULTY TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS	11
TROUBLESHOOT OPERATIONAL AMPLIFIERS	11
APPLY AC MOTOR THEORY OF OPERATION	10
APPLY AM MODULATION TRANSMITTER THEORY OF OPERATION	10
APPLY AM RECEIVER THEORY OF OPERATION	10
APPLY COMPUTER THEORY OF OPERATION	10
APPLY MOSFET THEORY OF OPERATION	10
APPLY MULTIVIBRATOR CIRCUIT THEORY OF OPERATION	10
APPLY PHOTOSENSITIVE DEVICE THEORY OF OPERATION	10
ISOLATE FAULTY COMPUTER MEMORIES	10
ISOLATE FAULTY TRANSISTOR AMPLIFIER COUPLING CIRCUITS	10
ISOLATE FAULTY WAVEGUIDES	10
PERFORM BASIC AC CIRCUIT CALCULATIONS	10
PERFORM BINARY CONVERSIONS	10
TROUBLESHOOT 3-PHASE TRANSFORMERS	10
TROUBLESHOOT FLIP-FLOPS	10
TROUBLESHOOT INDUCTORS	10
TROUBLESHOOT PULSE MODULATION TRANSMITTER	10
TROUBLESHOOT TRANSISTOR AMPLIFIER CIRCUITS	10
APPLY AC GENERATOR THEORY OF OPERATION	9
APPLY DISPLAY TUBE THEORY OF OPERATION	9
APPLY JFET THEORY OF OPERATION	9
APPLY MICROPROCESSOR THEORY OF OPERATION	9

KNOWLEDGE FOR ISOLATING MALFUNCTIONS (continued)	# OF TIME
APPLY PULSE MODULATION RECEIVER THEORY OF OPERATION	9
APPLY RESONANT CAVITY THEORY OF OPERATION	9
APPLY SOLENOID THEORY OF OPERATION	9
APPLY WAVEGUIDE THEORY OF OPERATION	9
ISOLATE FAULTY AC MOTORS	9
ISOLATE FAULTY AM TRANSMITTERS	9
ISOLATE FAULTY MICROPROCESSORS	9
TROUBLESHOOT RCL CIRCUITS	9
APPLY CHOPPER (SYNCHROUS VIBRATOR) THEORY OF OPERATION	8
APPLY ELECTRON TUBE AMPLIFIER THEORY OF OPERATION	8
APPLY FM RECEIVER THEORY OF OPERATION	8
APPLY FM TRANSMITTER THEORY OF OPERATION	8
APPLY LCD THEORY OF OPERATION	8
APPLY RAMP A/D CONVERTER THEORY OF OPERATION	8
ISOLATE FAULTY CMOS	8
ISOLATE FAULTY COMPUTER PERIPHERAL DEVICES	8
ISOLATE FAULTY ELECTRON TUBE AMPLIFIERS	8
ISOLATE FAULTY MOSFETs	8
ISOLATE FAULTY MULTIVIBRATOR CIRCUITS	8
ISOLATE FAULTY PHOTOSENSITIVE DEVICES	8
ISOLATE FAULTY TUNNEL DIODES	8
PERFORM HEXADECIMAL CONVERSIONS	8
PERFORM OCTAL CONVERSIONS	8
TROUBLESHOOT AC MOTORS	8
TROUBLESHOOT BIPOLAR JUNCTION TRANSISTORS	8
TROUBLESHOOT CMOS LOGIC FAMILIES	8
TROUBLESHOOT COMBINATIONAL LOGIC CIRCUITS	8
TROUBLESHOOT COMPUTER MEMORIES	8
TROUBLESHOOT WAVE GENERATING CIRCUIT OSCILLATORS	8
TROUBLESHOOT WAVESHAPING CIRCUITS	8
APPLY APPROXIMATION A/D CONVERTER THEORY OF OPERATION	7
APPLY COMPUTER PERIPHERAL DEVICE THEORY OF OPERATION	7
APPLY SINGLE SIDEBAND TRANSMITTER THEORY OF OPERATION	7
APPLY WEIGHTED RESISTOR D/A CONVERTER THEORY OF OPERATION	7
ISOLATE FAULTY AM RECEIVERS	7
ISOLATE FAULTY COMPUTER MAJOR UNITS	7
ISOLATE FAULTY DISPLAY TUBES	7
ISOLATE FAULTY FM MODULATION TRANSMITTERS	7
ISOLATE FAULTY JFETs	7
ISOLATE FAULTY PULSE MODULATION RECEIVERS	7
ISOLATE FAULTY RESONANT CAVITIES	7
ISOLATE FAULTY SOLENOIDS	7
ISOLATE FAULTY SYNCHROS-SERVOS	7
PERFORM BINARY MATH OPERATIONS	7
TROUBLESHOOT CLAMPER CIRCUITS	7
TROUBLESHOOT FREQUENCY SENSITIVE FILTERS	7

	# OF TIMES
KNOWLEDGE FOR ISOLATING MALFUNCTIONS (continued)	
APPLY CRT THEORY OF OPERATION	6
APPLY DC MOTOR THEORY OF OPERATION	6
APPLY SYSTEM THEORY OF OPERATION	6
APPLY TRANSDUCER THEORY OF OPERATION	6
APPLY UJT THEORY OF OPERATION	6
ISOLATE FAULTY CHOPPERS (SYNCHRONOUS VIBRATORS)	6
ISOLATE FAULTY FM RECEIVERS	6
ISOLATE FAULTY LCDs	6
ISOLATE FAULTY RAMP A/D CONVERTERS	6
ISOLATE FAULTY SINGLE SIDEBAND TRANSMITTERS	6
ISOLATE MALFUNCTIONS IN TEST STATION THROUGH INTERCONNECTS OF AN INSTALLED LRU	6
PERFORM RCL CIRCUIT CALCULATIONS	6
TROUBLESHOOT COMPUTER MAJOR UNITS	6
TROUBLESHOOT TRANSISTOR AMPLIFIER COUPLING CIRCUITS	6
TROUBLESHOOT TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS	6

APPENDIX C SPECIFIC TRAINING RECOMMENDATIONS

Many of the recommended changes are proficiency code changes. There are three major reasons these codes were changed. The first reason deals with current guidance provided in AFR 8-13, Air Force Specialty Training Standards and Air Force Job Qualification Standards. AFR 8-13 states that a CDC requirement can exist only when there is an upgrade requirement (e.g., from "A" to "B" or a "2b" to "B") or a need to review material to support an upgrade requirement. As a result, many CDC requirements were changed or eliminated entirely. Several STS elements were also changed to align with recommended entries outlined in the same regulation. All changes made as a result of guidance in AFR 8-13 are marked by a single asterisk (*).

The second reason for proficiency code changes results from the need to reflect STS elements that do not depend on psychomotor skills as subject knowledge. This means that numerous items previously coded as tasks (2b) or task knowledge (b) have been changed to subject knowledge (B). Also, elements that fall into this category, but were previously dashed (-), have been coded as subject knowledge. Many of these items may have performance skills inherent in their accomplishment, but the final result is concerned strictly with cognitive application. The completed analysis supports coding these items as subject knowledge. Such changes in the specific recommendations are identified with double asterisks (**).

The last major reason the proficiency codes were changed is the need to code representative systems. Proficiency codes may have been added or deleted to allow the recommended representative equipment, station, or LRU to be identified. These changes are marked with triple asterisks (***) . This code is also used to show the inclusion of "theory of operation" in the CDC.

Additional changes to the STS are recommended for standardization. These include rewording elements and reformatting paragraphs to make them standard throughout the STS. These changes are identified with triple dollar signs (\$\$).

All remaining changes are identified using triple plus signs (+++). The specific reasons for each of these changes are explained in the Summary of Proposed Changes which follows the specific training recommendations.

The format for the specific recommendations is based on the current STS, but only the recommended changes are included. Because recommendations have been made for the 3-skill-level course and a 5-skill-level CDC only, the other columns usually seen in an STS have been deleted. A column has been added to cross-reference STS elements with TRA tasks. For ease of understanding, only the coded STS elements have been referenced to specific TRA task(s). Several TRA TASK references are too lengthy to include in the body of the STS and are provided as notes following the STS.

These recommendations were developed with assistance from the
3450th Technical Training Squadron.

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	* 2. SECURITY			
	a. Communications Security (COMSEC) TP: AFRs 56-50, 205-1; DOD 5200.1-R; AFP 100-46; AFCC 100-10			
	(1) Classify information		-	-
	(2) Prevent security violations		-	-
	(3) Use MAJCOM/SOA EEFIs		-	-
	(4) Observe security precautions involved in communications		-	-
	b. Operations Security (OPSEC) TR: AFRs 55-30, 205-1, 205-16			
	(1) Definition of OPSEC		-	-
	(2) History of OPSEC		-	-
	(3) Relationship of OPSEC to the other security programs		-	-
	(4) Common OPSEC vulnerabilities		-	-
	(5) OPSEC significance of unclassified data		-	-
	(6) Specific OPSEC vulnerabilities of AFSC 451X6		B	-
	(7) Physical security		B	-
	3. AIR FORCE OCCUPATIONAL SAFETY AND HEALTH (OSH) PROGRAM			
	* a. Hazards of AFSC 451X6		A	B
	* b. AFOSH STD for AFSC 451X6		A	B
	d. Apply Safety Precautions When Working With:			

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	3. AIR FORCE OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM (continued)			
	*** (4) Cleaning agents		2b	-
	*** (6) Cathode-ray tube (CRT)		2b	-
	*** (10) High intensity sound		2b	-
	* e. Hazards of RF Radiation		A	B
	** f. Report Suspected RF Overexposure		A	B
	4. TECHNICAL PUBLICATIONS			
	* a. Function and Application		A	B
	** b. Use Technical Order (TO) Indexes		A	B
	c. Use TOs to Perform:			
	* (1) Maintenance		B	-
	* (2) Inspections		B	-
	+++ d. Report TO Deficiencies		-	-
	5. AIR FORCE SUPPLY DISCIPLINE			
	** c. Use Condition Tags	Note 1	A	B
	** d. Use Issue/Turn-in Requests	Note 1	A	B
	+++ e. Use Supply Cross Reference Lists		-	-
	* 8. MAINTENANCE MANAGEMENT TR: MCRs as Applicable			
	a. Responsibilities of the Deputy Commander for Maintenance (DCM) TR: AFR 66-1, Part 2, Chapter 3; MCRs as applicable	None	A	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	8. MAINTENANCE MANAGEMENT (continued)			
	b. Basic Functions Within Maintenance Complex TR: AFR 66-1, Part 2, Chapters 4, 5, and 6		A	B
	c. Core Automated Maintenance System (CAMS) TR: AFMs 66-267, 66-278; TO 00-20-series	All	A	B
	d. Processing and Controlling of Material TR: AFR 66-1, Part 2, Chapter 4		-	-
	e. Management of Training TR: AFR 66-1, Part 2, Chapter 6		-	-
	* 9. MAINTENANCE AND INSPECTION			
	a. Maintenance Systems TR: AFR 66-1, Part 1, Chapter 1; MCRs as applicable	All	A	B
	b. Inspection Systems TR: TO 00-20-7	All	A	B
	c. Use CAMS TR: AFMs 66-267, 66-278; TO 00-20-series	All	A	B
	d. Material Deficiency Reporting System TR: TO 00-35D-54	All	-	B
	+++10. GENERAL MAINTENANCE PRACTICES			
	*** b. Perform Safety Wiring	60280 60540 61250 61450	2b	-
	+++ f. Perform Visual Inspections	Note 2	2b	-
	*** g. Use CTK Program	Note 3	2b	-
	*** l. Clean Equipment Components		2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	10. GENERAL MAINTENANCE PRACTICES (continued)			
	+++ o. Trace Signal Flow	Note 4	B	-
	+++ p. Use Schematic Diagrams	Note 5	B	-
	+++ q. Install Extender Boards	Note 6	2b	-
	+++ r. Use Power Meter	Note 7	2b	-
	+++ s. Use RF Power Meter	Note 8	2b	-
	+++ t. Use Frequency Response Test Set	Note 9	2b	-
	+++ u. Clean Contacts	Note 10	2b	-
	+++11. SYSTEMS PRINCIPLES			
	* a. Radar		-	B
	+++ b. Navigation Systems		-	B
	c. Flight control		-	B
	+++ d. Electronic Countermeasures		-	B
	+++ e. Airborne Communication Systems		-	B
	+++ f. Airborne Identification and Recognition Systems		-	B
	+++ g. Air Data Computer Systems		-	B
	12. SOFTWARE SYSTEMS			
	\$\$\$ a. Theory of Operation	Note 11	A	B
	\$\$\$ b. Use Application Software		-	-
	\$\$\$ c. Troubleshoot		-	-
	13. AUTOMATIC TEST EQUIPMENT (COMMON CORE)			
	\$\$\$ a. Theory of Operation	60030	A	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***14.	COMPUTER TEST STATION (AIS/R)			
\$\$\$				
	a. Theory of Operation	60190	A	B
	b. Perform Confidence Test	60150	2b	-
	c. Perform Operational Assurance/Fault Isolation (OA/FI)	60160	2b	-
**	d. Troubleshoot	60190	B	-
	e. Repair	60200	2b	-
	f. Calibrate	60200	2b	-
	g. Peculiar TRU Data Flow	60190	B	-
	h. Interpret Peculiar CIIL		A	B
***15.	ELECTRONIC WARFARE TEST STATION (AIS/R)			
\$\$\$				
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Perform OA/FI		-	-
	d. Troubleshoot		-	-
	e. Repair		-	-
	f. Calibrate		-	-
	g. Peculiar TRU Data Flow		-	-
	h. Interpret Peculiar CIIL		-	-
***16.	RADIO FREQUENCY TEST STATION (AIS/R)			
\$\$\$				
	a. Theory of Operation	60190	A	B
	b. Perform confidence test	60150	2b	-
	c. Perform OA/FI	60160	2b	-
**	d. Troubleshoot	60190	B	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
16.	RADIO FREQUENCY TEST STATION (AIS/R) (continued)			
	e. Repair	60200	2b	-
	f. Calibrate	60200	2b	-
	g. Peculiar TRU Data Flow	60190	B	-
	h. Interpret Peculiar CIIL		A	B
***17.	VIDEO TEST STATION (AIS/R)			
\$\$\$				
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Perform OA/FI		-	-
	d. Troubleshoot		-	-
	e. Repair		-	-
	f. Calibrate		-	-
	g. Peculiar TRU Data Flow		-	-
	h. Interpret Peculiar CIIL		-	-
18.	AVIONICS TEST SET CALIBRATOR SET (ATSCS)			
	* a. Theory of Operation		A	B
19.	SUPPORT EQUIPMENT			
	*** a. Interface Test Adapters			
	(1) Perform wraparound tests	61490	2b	-
	** (2) Troubleshoot	61490	B	-
	(3) Repair	61500	2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	19. SUPPORT EQUIPMENT (continued)			
	*** b. Antenna Coupler/Load Cart Group			
	(1) Theory of operation	-	B	
	(2) Perform operational checks	-	-	
	*** c. Pressure Simulator System			
	(1) Theory of operation	-	B	
	(2) Perform operational checks	-	-	
	*** d. Display Test Assembly			
	(1) Theory of operation	-	B	
	(2) Perform operational checks	-	-	
	(5) Calibrate	-	-	
	*** e. Microwave Test Assembly			
	(1) Theory of operation	-	B	
	(2) Perform operational checks	-	-	
	(5) Calibrate	-	-	
	*** f. Gyro/Accelerometer Test Assembly			
	(1) Theory of operation	-	B	
	(2) Perform operational checks	-	-	
	(5) Calibrate	-	-	
	***20. DYNAMIC TEST SETS			
	a. Computer Test Set (AN/GSM-299)			
	(1) Theory of operation	-	B	
	(3) Perform operational checks	-	-	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	20. DYNAMIC TEST SETS (continued)			
	b. Computer Test Set (AN/GSM-306) (AN/GSM-307)			
	(1) Theory of operation	-	B	
	c. Controls and Display Test Set (AN/GSM-297)			
	(1) Theory of operation	-	B	
	d. Control and Displays Test Set (AN/GSM-298)			
	(1) Theory of operation	-	B	
	e. Flight Controls Test Set (AN/GJM-61)			
	(1) Theory of operation	-	B	
	f. Inertial Bomb Navigation System Test Set (AN/AJM-41)			
	(1) Theory of operation	-	B	
	g. Inertial Navigation System Test Set (AN/AJM-40)			
	(1) Theory of operation	-	B	
	h. Integrated Displays Set Test Station (AN/GSM-304)			
	(1) Theory of operation	-	B	
	i. Radar Test Set (AN/APM-443)			
	(1) Theory of operation	-	B	
	***21. NAVIGATION AJN-20			
	a. Navigation computer unit			
	(1) Theory of operation	-	B	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
21.	NAVIGATION AJN-20 (continued)			
	b. Stable Platform		-	B
	(1) Theory of operation		-	B
	c. Ballistic Computer		-	B
	(1) Theory of operation		-	B
***22.	NAVIGATION AJN-16			
	a. Navigation Computer			
	(1) Theory of operation	60300 60360	A	B
	(2) Perform bench checks	60290 60350	2b	-
	** (3) Troubleshoot	60300 60360	B	-
	(4) Repair	60310 60370	2b	-
	(5) Align	60310 60370	2b	-
	b. Inertial Reference Unit			
	(1) Theory of operation		-	B
	c. Battery Controller Power Supply			
	(1) Theory of operation		-	B
	d. Weapons System Maintenance Control			
	(1) Theory of operation		-	B
***23.	DIGITAL COMPUTER COMPLEX			
	a. Weapons Navigation Computer			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	23. DIGITAL COMPUTER COMPLEX (continued)			
	b. Advanced Multiplex Converter			
	(1) Theory of operation		-	B
	***24. INTEGRATED DISPLAYS SYSTEM			
	a. Analog Display Indicator		-	B
	(1) Theory of operation		-	B
	b. Digital Data Indicator		-	B
	(1) Theory of operation		-	B
	c. Radar Data Converter		-	B
	(1) Theory of operation		-	B
	d. Right Hand/Left Hand Optical Display Sight		-	B
	(1) Theory of operation		-	B
	e. Video Signal Processor		-	B
	(1) Theory of operation		-	B
	f. Computer Control		-	B
	(1) Theory of operation		-	B
	g. Navigation Display Unit		-	B
	(1) Theory of operation		-	B
	***25. INDICATORS/CONTROLS			
	a. Antenna Indicator Controller			
	(1) Theory of operation		-	B
	b. Standby Attitude Indicator			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
25.	INDICATORS/CONTROLS (continued)			
c.	Bomb Navigation Distance Display Indicator			
	(1) Theory of operation	-	B	
d.	Compass System Controller			
	(1) Theory of operation	-	B	
e.	Control Indicator			
	(1) Theory of operation	-	B	
f.	Countermeasures Set Control			
	(1) Theory of operation	-	B	
g.	Cursor Control and Indicator			
	(1) Theory of operation	-	B	
h.	Instrument Set Coupler			
	(1) Theory of operation	-	B	
i.	Power Switching Assembly			
	(1) Theory of operation	-	B	
j.	Horizontal Situation Indicator			
	(1) Theory of operation	-	E	
k.	Intercom Set Station			
	(1) Theory of operation	-	E	
l.	Electronic Control Amplifier			
	(1) Theory of operation	-	B	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***26.	STALL INHIBITOR SYSTEM			
	a. Stall Inhibitor Computer			
	(1) Theory of operation	-	B	
	b. Stall Warning Relay Assembly			
	(1) Theory of operation	-	B	
***27.	LOW ALTITUDE RADAR ALTIMETER			
	a. Indicator			
	(1) Theory of operation	-	B	
	b. Low Altitude Monitor			
	(1) Theory of operation	-	B	
	c. Receiver/Transmitter			
	(1) Theory of operation	-	B	
***28.	LEAD COMPUTING OPTICAL SIGHT			
	a. Lead Computing Gyro			
	(1) Theory of operation	-	B	
	b. Optical Display Sight			
	(1) Theory of operation	-	B	
	c. Lead and Launch Computer Amplifier			
	(1) Theory of operation	-	B	
***29.	TERRAIN FOLLOWING RADAR (TFR)			
	a. Amplifier Power Supply			
	(1) Theory of operation	-	B	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
29.	TERRAIN FOLLOWING RADAR (TFR) (continued)			
b.	TFR Computer		-	B
	(1) Theory of operation		-	B
c.	TFR Indicator		-	B
	(1) Theory of operation		-	B
d.	TFR Synchronizer-Transmitter			
	(1) Theory of operation	60300 60330	A	B
	(2) Perform bench checks	60290 60320	2b	-
	** (3) Troubleshoot	60300 60330	B	-
	(4) Repair	60310 60340	2b	-
	(5) Align	60310 60340	2b	-
e.	Antenna Receiver			
	(1) Theory of operation		-	B
f.	Mounting Rack			
	(1) Theory of operation		-	B
g.	TFR Radar Set Controller			
	(1) Theory of operation		-	B
***30.	ATTACK RADAR SYSTEMS (APQ-113, 114, 144, 169)			
a.	Antenna Assembly			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
30.	ATTACK RADAR SYSTEMS (continued)			
b.	Antenna Assembly Pedestal		-	B
	(1) Theory of operation		-	B
c.	Antenna Control		-	B
	(1) Theory of operation		-	B
d.	Attack Radar Receiver-Transmitter Modulator/Radar Receiver-Transmitter			
	(1) Theory of operation	60300 60330	A	B
	(2) Perform bench checks	60290 60320	2b	-
	** (3) Troubleshoot	60300 60330	B	-
	(4) Repair	60310 60340	2b	-
	(5) Align	60310 60340	2b	-
e.	Synchronizer			
	(1) Theory of operation		-	B
f.	Indicator Recorder/Radar Indicator			
	(1) Theory of operation		-	B
g.	ARS Radar Set Controller			
	(1) Theory of operation		-	B
***31.	ATTACK RADAR SYSTEM (APQ-130)			
a.	Antenna			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
31.	ATTACK RADAR SYSTEM (continued)			
b.	Antenna Assembly Pedestal		-	B
	(1) Theory of operation		-	B
c.	Attack Radar Receiver		-	B
	(1) Theory of operation		-	B
d.	Master Frequency Generator		-	B
	(1) Theory of operation		-	B
E.	Attack Radar Transmitter		-	B
	(1) Theory of operation		-	B
f.	Electronic Processor Unit		-	B
	(1) Theory of operation		-	B
g.	Signal Data Converter		-	B
	(1) Theory of operation		-	B
h.	Low Voltage Power Supply		-	B
	(1) Theory of operation		-	B
i.	Electronic Equipment Rack		-	B
	(1) Theory of operation		-	B
j.	Interference Blanker		-	B
	(1) Theory of operation		-	B
***32.	AUTOMATIC FLIGHT CONTROLS			
a.	Roll Computer			
	(1) Theory of operation	60300 60360	A	B
	(2) Perform bench checks	60290 60350	2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	32. AUTOMATIC FLIGHT CONTROLS (continued)			
	** (3) Troubleshoot	60300 60360	B	-
	(4) Repair	60310 60370	2b	-
	(5) Align	60310 60370	2b	-
	b. Yaw Computer			
	(1) Theory of operation		-	B
	c. Pitch Computer			
	(1) Theory of operation		-	B
	d. Feel and Trim Assembly			
	(1) Theory of operation	60300 60360	A	B
	(2) Perform bench checks	60290 60350	2b	-
	** (3) Troubleshoot	60300 60360	B	-
	(4) Repair	60310 60370	2b	-
	(5) Align	60310 60370	2b	-
	e. Autopilot Damper Panel			
	(1) Theory of operation		-	B
	f. Displacement Gyroscope			
	(1) Theory of operation		-	B
	g. Normal Linear Accelerometer			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	32. AUTOMATIC FLIGHT CONTROLS (continued)			
	h. Rate Gyro Assembly			
	(1) Theory of operation		-	B
	i. Lateral Linear Accelerometer Assembly			
	(1) Theory of operation		-	B
***	33. INSTRUMENT LANDING SYSTEM (ILS)			
	a. Glideslope/Marker Beacon Receiver			
	(1) Theory of operation		-	B
	b. Localizer Receiver			
	(1) Theory of operation		-	B
	c. Receiver Control			
	(1) Theory of operation		-	B
***	34. RADAR BEACON TRANSPONDER			
	a. Receiver-Transmitter Transponder			
	(1) Theory of operation		-	B
	b. Transponder Control			
	(1) Theory of operation		-	B
++	36. RELAY PACKAGES			
***	37. CENTRAL PROCESSOR AND CONTROLLER (CENPAC)			
\$\$\$				
	a. Theory of Operation		-	B
	b. Test		-	-
	c. Repair		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
\$\$\$38.	INTEGRATED DISPLAY SYSTEM AUTOMATIC TEST STATION, F-111D, AN/AVA-9A			
	b. Troubleshoot		-	-
	c. Repair		-	-
	d. Calibrate		-	-
***39.	COMMON AUTOMATIC TEST EQUIPMENT (CATE)			
\$\$\$				
	a. Theory of Operation		-	B
	b. Automatically Test TRUs		-	-
	c. Manually Test TRUs		-	-
	d. Repair		-	-
***40.	RADAR/RECEIVER-TRANSMITTER-MODULATOR TEST STATIONS			
\$\$\$				
	a. Theory of Operation	60030	A	B
	b. Perform Confidence Test	60010	2b	-
	c. Calibrate	60040	2b	-
	d. Test	60020	2b	-
**	e. Troubleshoot	60030	B	-
	f. Repair	60040	2b	-
	g. Maintain Fill Station FCS-103		-	-
***41.	VIDEO TEST STATION			
\$\$\$				
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Calibrate		-	-
	d. Test		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	41. VIDEO TEST STATION (continued)			
	e. Troubleshoot		-	-
	f. Repair		-	-
***42. \$\$\$	SERVO AND INDICATORS/INDICATOR-SERVO SYSTEMS TEST STATIONS			
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Calibrate		-	-
	d. Test		-	-
	e. Troubleshoot		-	-
	f. Repair		-	-
***43. \$\$\$	DISPLAYS TEST STATION			
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Calibrate		-	-
	d. Test		-	-
	e. Troubleshoot		-	-
	f. Repair		-	-
***44. \$\$\$	COMPUTER/NAVIGATION AND FLIGHT CONTROLS/CONVERTER AND FLIGHT CONTROLS TEST STATIONS			
	a. Theory of Operation	60030	A	B
	b. Perform Confidence Test	60010	2b	-
	c. Calibrate	60040	2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
44.	COMPUTER/NAVIGATION AND FLIGHT CONTROLS/CONVERTER AND FLIGHT CONTROLS TEST STATIONS (continued)			
	d. Test	60020	2b	-
	** e. Troubleshoot	60030	B	-
	f. Repair	60040	2b	-
***45. \$\$\$	INDICATORS AND SENSORS/ELECTRONIC SYSTEMS/INDICATORS AND MODULES TEST STATIONS			
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Calibrate		-	-
	d. Test		-	-
	e. Troubleshoot		-	-
	f. Repair		-	-
***46. \$\$\$	ATTITUDE AND RATE TEST STATION			
	a. Theory of Operation		-	B
	b. Perform Confidence Test		-	-
	c. Calibrate		-	-
	d. Test		-	-
	e. Troubleshoot		-	-
	f. Repair		-	-
***47. \$\$\$	DIGITAL/NAVIGATION AND WEAPONS DELIVERY COMPONENTS TEST STATIONS			
	a. Theory of Operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	47. DIGITAL/NAVIGATION AND WEAPONS DELIVERY COMPONENTS TEST STATIONS (continued)			
	b. Perform confidence test		-	-
	c. Calibrate		-	-
	d. Test		-	-
	e. Troubleshoot		-	-
	f. Repair		-	-
***48.	DISPLAY/SCAN TEST STATION (AN/AVM-25)			
\$\$\$			-	B
	a. Theory of Operation		-	-
	b. Test		-	-
	c. Troubleshoot		-	-
	d. Calibrate		-	-
	e. Repair		-	-
***49.	SUPPORT EQUIPMENT			
	a. Amplifier/Detector Test Set (AN/ALM-196)			
	(1) Theory of operation		-	B
	b. PROM Programmer (MODEL 901-5500-51)			
	(1) Theory of operation		-	B
	(2) Perform operational checks		-	-
	(6) Program PROMs		-	-
	c. USM-427 ECM Test Set			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	49. SUPPORT EQUIPMENT (continued)			
	d. Time Signal Test Set (AN/TRC-177)			
	(1) Theory of operation		-	B
***50. ARC-164 UHF COMMUNICATION SYSTEM AND \$\$\$ TEST EQUIPMENT GROUP/HAVE QUICK				
	a. UHF Test Equipment Group Interface		-	-
	b. LRU/SRU Characteristics and Data Flow		-	-
	(1) Receiver transmitter		-	-
	(2) Control box		-	-
	(3) Other LRUs/SRUs		-	-
	c. Bench Check		-	-
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control Box		-	-
	(4) Other LRUs/SRUs		-	-
	d. Troubleshoot		-	-
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control box		-	-
	(4) Other LRUs/SRUs		-	-
	e. Repair		-	-
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control box		-	-
	(4) Other LRUs/SRUs		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***51. \$\$\$	IDENTIFICATION FRIEND OR FOE (IFF) TRANSPONDER SYSTEM AND IFF TEST EQUIPMENT GROUP			
	a. IFF Test Equipment Group Interface	60570	A	B
	b. LRU/SRU Characteristics and Data Flow			
	(1) Receiver/transmitter	60570	B	-
	(2) Control box		-	-
	(3) Other LRUs/SRUs		-	-
	c. Bench Check			
	(1) Receiver transmitter	60560	2b	-
	(2) Control box		-	-
	(3) Other LRUs/SRUs		-	-
	d. Troubleshoot			
	** (1) Receiver transmitter	60570	2b	-
	(2) Control box		-	-
	(3) Other LRUs/SRUs		-	-
	e. Repair			
	(1) Receiver transmitter	60580	2b	-
	(2) Control box		-	-
	(3) Other LRUs/SRUs		-	-
***52. \$\$\$	MODE 4 SYSTEM (C)		-	-
	a. Theory of Operation		-	B
	b. Test			
	(1) Transponder computer (KIT)		-	-
	(2) Interrogator computer (KIR)		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	52. MODE 4 SYSTEM (C) (continued)		-	-
	c. Repair		-	-
	(1) Transponder computer (KIT)		-	-
	(2) Interrogator computer (KIR)		-	-
***53. \$\$\$	TACAN SYSTEM LRUs/SRUs AND TACAN TEST EQUIPMENT GROUP			
	a. TACAN Test Equipment Group Interface		-	-
	b. LRU/SRU Characteristics and Data Flow		-	-
	(1) Receiver transmitter		-	-
	(2) Control box		-	-
	(3) Converter		-	-
	(4) Other LRUs/SRUs		-	-
	c. Bench Check		-	-
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control box		-	-
	(4) Converter		-	-
	(5) Other LRUs/SRUs		-	-
	d. Troubleshoot		-	-
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control box		-	-
	(4) Converter		-	-
	(5) Other LRUs/SRUs		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	53. TACAN SYSTEM LRUs/SRUs AND TACAN TEST EQUIPMENT GROUP (continued)			
	e. Repair			
	(1) Test equipment group		-	-
	(2) Receiver transmitter		-	-
	(3) Control box		-	-
	(4) Converter		-	-
	(5) Other LRUs/SRUs		-	-
***54. HF TEST EQUIPMENT GROUP (ARC 190)				
\$\$\$				
	a. HF Test Equipment Group Interface		-	-
	b. LRU/SRU Characteristics and Data Flow			
	(1) HF receiver transmitter/power supply		-	-
	(2) HF antenna coupler		-	-
	(3) HF control box		-	-
	(4) HF radio system mount		-	-
	c. Bench Check			
	(1) Test equipment group		-	-
	(2) HF receiver transmitter/power supply		-	-
	(3) HF antenna coupler		-	-
	(4) HF control box		-	-
	(5) HF radio system mount		-	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	54. HF TEST EQUIPMENT GROUP (continued)			
	d. Troubleshoot			
	(1) Test equipment group	-	-	
	(2) HF receiver transmitter/power supply	-	-	
	(3) HF antenna coupler	-	-	
	(4) HF control box	-	-	
	(5) HF radio system mount	-	-	
	d. Repair			
	(1) Test equipment group	-	-	
	(2) HF receiver transmitter/power supply	-	-	
	(3) HF antenna coupler	-	-	
	(4) HF control box	-	-	
	(5) HF radio system mount	-	-	
	55. AIR DATA COMPUTING SYSTEM			
	*** b. Central Air Data Computer			
	(1) Theory of operation	60530	A	B
	(2) Perform bench checks	60520	2b	-
	** (3) Troubleshoot	60530	B	-
	(4) Repair	60540	2b	-
	(5) Align	60540	2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***56. \$\$\$	CENTRAL AIR DATA COMPUTER TEST STATION			
	a. Theory of Operation	60490	A	B
	b. Interface of Peculiar TRUs	60490	B	-
	c. Calibrate	60500	2b	-
	d. Perform Confidence Test	60470	2b	-
	** e. Troubleshoot	60480 60490	B	-
	f. Repair	60500	2b	-
***57. \$\$\$	RADAR ALTIMETER RECEIVER-TRANSMITTER TEST STATION			
	a. Theory of Operation	-		B
	b. Perform Confidence Test	-		-
	c. Calibrate	-		-
	d. Test	-		-
	e. Troubleshoot	-		-
	f. Repair	-		-
***58. \$\$\$	DOPPLER RADAR TEST STATION/RADAR TEST SET			
	a. Theory of Operation	-		B
	b. Perform Confidence Test	-		-
	c. Calibrate	-		-
	d. Test	-		-
	e. Troubleshoot	-		-
	f. Repair	-		-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
59.	TEST SETS			
	a. Signal Data Converter			
	*** (1) Theory of operation		-	B
\$\$\$61.	AMPLIFIER/DETECTOR (AN/ALR62; AN/ALR64; AN/ALR69) (COMPASS SAIL)			
	a. Principles of Operation		-	-
	c. Perform Operational Tests		-	-
	d. Isolate Malfunctions		-	-
	e. Repair		-	-
	f. Align		-	-
***62.	COUNTERMEASURES RECEIVER SET (CRS) SYSTEM			
	a. Aft Receiver			
	(1) Theory of operation		-	B
	b. Digital Processor			
	(1) Theory of operation		-	B
	c. Electrical Equipment Cabinet			
	(1) Theory of operation		-	B
	d. Forward Receiver			
	(1) Theory of operation		-	B
	e. Control Indicator			
	(1) Theory of operation		-	B
	f. Indicator Panel			
	(1) Theory of operation		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***63.	TRACKBREAKER SYSTEM			
	a. High Band Power Amplifier			
	(1) Theory of operation	-	B	
	b. High Band Receiver			
	(1) Theory of operation	-	B	
	c. Low Band Power Amplifier			
	(1) Theory of operation	-	B	
	d. Low Band Receiver			
	(1) Theory of operation	-	B	
	e. Medium Band Receiver			
	(1) Theory of operation	-	B	
	f. Medium Band Receiver			
	(1) Theory of operation	-	B	
***65.	PENETRATION AIDS TEST STATION			
\$\$\$				
	a. Theory of Operation	-	B	
	b. TRU Data Flow	-	-	
	c. Perform Maintenance Tests	-	-	
	d. Troubleshoot	-	-	
	e. Repair	-	-	
	f. Align	-	-	
***66.	COUNTERMEASURES RECEIVER SET (CRS) TEST STATION			
\$\$\$				
	a. Theory of Operation	-	B	
	b. TRU Data Flow	-	-	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
66.	COUNTERMEASURES RECEIVER SET (CRS) TEST STATION (continued)			
	c. Perform Maintenance Test	-	-	
	d. Troubleshoot	-	-	
	e. Repair	-	-	
	f. Align	-	-	
***67.	DIGITAL PROCESSOR TEST SET (DPTS)			
\$\$\$				
	a. Theory of Operation	-	B	
	b. TRU Data Flow	-	-	
	c. Perform Maintenance Test	-	-	
	d. Troubleshoot	-	-	
	e. Repair	-	-	
	f. Align	-	-	
***68.	INFRARED (IR) TEST STATION			
\$\$\$				
	a. Theory of Operation	-	B	
	b. Perform Maintenance Test	-	-	
	c. Troubleshoot	-	-	
	d. Calibrate	-	-	
	e. Service Cryogenic Converter	-	-	
	f. Repair	-	-	
	g. Align	-	-	
***69.	AMPLIFIER ADF/UHF			
	a. Theory of Operation	-	B	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***70. \$\$\$	<p>ELECTRONIC COUNTERMEASURES POD TEST STATION</p> <p>a. Theory of Operation</p> <p>b. Perform Periodic Inspection</p> <p>c. Perform Station Self Test</p> <p>d. Edit Data</p> <p>e. Duplicate</p> <p>(1) Tape</p> <p>(2) Disk</p> <p>f. Troubleshoot</p> <p>g. Repair</p>		-	B
***71. \$\$\$	<p>ELECTRONIC COUNTERMEASURES PODS</p> <p>a. Theory of Operation</p> <p>b. Perform Operational Test</p> <p>(1) End-to-end check</p> <p>(2) Hat-check</p> <p>(3) PMIS</p> <p>c. Troubleshoot</p> <p>d. Service Cooling System</p> <p>e. Repair</p> <p>f. Align</p>		-	B

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
***72.	AUTOMATIC TEST EQUIPMENT (AN/ALM-204)			
\$\$\$	a. Theory of Operation	-	B	
	b. Initialize	-	-	
	c. Perform Diagnostics	-	-	
	d. Manually Operate	-	-	
	e. Troubleshoot	-	-	
	f. Repair	-	-	
***73.	ELECTRONIC COUNTERMEASURES SET (ALQ-99)			
\$\$\$	a. Theory of Operation	-	B	
	b. Troubleshoot	-	-	
	c. Repair	-	-	
	d. Use Deaeration Cart	-	-	

ELECTRONIC FUNDAMENTALS/APPLICATIONS (EFA)

TRA TASK and 5 LVL CDC columns are not coded. The EFA/TRA TASK correlation is too lengthy to be included in the body of the STS and has been provided in Appendix D. There are no 5-skill-level CDC requirements.

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	1. BASIC TERMS			
	+++ b. DC Terms		-	-
	+++ c. AC Terms		-	-
	6. INDUCTORS			
	+++ c. Calculations		B	-
	7. CAPACITORS			
	+++ c. Calculations		-	-
	9. THREE PHASE TRANSFORMERS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Three Phase Transformers		2b	-
	10. DC MOTORS			
	+++ b. Isolate Faulty DC Motors		2b	-
	+++ c. Troubleshoot Motors		2b	-
	11. AC MOTORS			
	+++ b. Isolate Faulty AC Motors		2b	-
	+++ c. Troubleshoot Motors		2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	12. DC GENERATORS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty DC Generators		2b	-
	+++ c. Troubleshoot DC Generators		2b	-
	13. AC GENERATORS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty AC Generators		2b	-
	+++ c. Troubleshoot AC Generators		2b	-
	14. ALTERNATORS			
	+++ a. Theory of Operation		B	-
	15. SYNCHROS/SERVOS			
	+++ b. Isolate Faulty Synchros/Servos		2b	-
	+++ c. Troubleshoot Synchros/Servos		2b	-
	16. CHOPPERS (Synchronous Vibrators)			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Choppers		2b	-
	17. TRANSDUCERS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Transducers		2b	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	18. METER MOVEMENTS			
	+++ a. Theory of Operation	B	-	
	+++ b. Isolate Faulty Meter Movements	2b	-	
	19. SOLID STATE DIODES			
	* a. Theory of Operation	B	-	
	+++ c. Specifications	B	-	
	+++ d. Color Code	B	-	
	20. BI-POLAR JUNCTION TRANSISTORS			
	* a. Theory of Operation	B	-	
	+++ c. Specifications	B	-	
	21. INTEGRATED CIRCUITS			
	* a. Familiarization	B	-	
	+++ b. Isolate Faulty Integrated Circuits	2b	-	
	+++ c. Specifications	B	-	
	22. SOLID STATE SPECIAL PURPOSE DEVICES (SCR, Zener Diode, Tunnel Diode, LED, LCD, UJT, JFET, MOSFET)			
	+++ b. Isolate Faulty Special Purpose Devices	2b	-	
	23. ELECTRON TUBES			
	+++ b. Isolate Faulty Tubes	2b	-	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	24. CATHODE-RAY TUBES (CRTs)			
	+++ b. Isolate Faulty CRTs		2b	-
	25. SOLDER/DESOLDER			
	+++ d. Coaxial		2b	-
	+++26. REPAIR SOLDERLESS CONNECTORS			
	27. USE TEST EQUIPMENT			
	+++ c. Signal Generator		2b	-
	+++ d. Frequency Counter		2b	-
	+++ i. Capacitor Tester		2b	-
	+++ l. Logic Current Tracer		-	-
	+++ n. Logic Pulser		-	-
	+++ o. Logic Analyzer		-	-
	+++ q. Reflectometer		2b	-
	29. ELECTRON TUBE AMPLIFIERS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Tube Amplifiers		2b	-
	+++ c. Troubleshoot Circuits		2b	-
	+++30. OPERATIONAL AMPLIFIERS			
	* a. Theory of Operation		B	-
	31. MAGNETIC AMPLIFIERS			
	+++ a. Theory of Operation		B	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
33.	POWER SUPPLY CIRCUITS (Half-wave, Full-wave, Full-wave bridge)			
	a. Theory of Operation			
	* (1) Rectifiers (half-wave, full-wave, (full-wave bridge)	B	-	
	* (2) Filters (Capacitive, Inductive, L-section, Pi-section)	B	-	
34.	Voltage Regulators (Shunt, Series EVR, IC EVR)			
	* a. Theory of Operation	B	-	
35.	RESISTIVE/CAPACITIVE/INDUCTIVE (RCL) CIRCUITS			
	+++ d. Calculations	B	-	
38.	LIMITER CIRCUITS (Diode, Zener Diode, Transistor)			
	+++ b. Isolate Faulty Limiters	2b	-	
	+++ c. Troubleshoot Circuits	2b	-	
39.	CLAMPER CIRCUITS			
	+++ b. Isolate Faulty Clamps	2b	-	
	+++ c. Troubleshoot Circuits	2b	-	
40.	DIGITAL NUMBERING SYSTEMS (Binary, Octal, Hexadecimal)			
	* a. Conversions	B	-	
	* b. Math Operations	B	-	
	+++ c. Binary Code Systems	-	-	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
41.	DIGITAL LOGIC FUNCTIONS (Main Logic Gates and Flip-Flops)			
	* a. Theory of Operation		B	-
	+++ d. Logic Families (TTL and CMOS)		B	-
42.	BOOLEAN EQUATIONS			
	+++ a. Diagram to Equation		-	-
	+++ b. Equation to Diagram		-	-
43.	COMPUTERS			
	* a. Operation Principles		B	-
	+++ b. Load Programs		B	-
	+++ c. Write/Debug Programs		B	-
	+++ d. Isolate Faults		2b	-
	+++ e. Troubleshoot Circuit		2b	-
	* f. Types of Memories		B	-
	* g. Peripheral Devices		B	-
	+++ h. Programming Languages		B	-
45.	LOGIC CIRCUITS			
	a. Theory of Operation			
	* (1) Counters (synchronous/ asynchronous-up/down counters)		B	-
	* (2) Registers (shift and storage)		B	-
	* (3) Combinational logic circuits (Half-adder, full-adder, encoder, decoder, multiplexer, demultiplexer, count detect)		B	-

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
46.	D/A, A/D CONVERTERS (Approx D/A and Ramp A/D)			
	* a. Theory of Operation	B	-	
	+++ b. Isolate Faulty Converters	2b	-	
47.	TRANSMISSION LINES			
	+++ b. Perform Measurements	B	-	
	+++ c. Calculations	B	-	
	+++ d. Isolate Faulty Transmission lines	2b	-	
48.	WAVEGUIDES			
	* a. Theory of Operation	B	-	
	+++ b. Isolate Faulty Waveguides	2b	-	
49.	MICROWAVE OSCILLATORS & AMPLIFIERS			
	+++ c. Isolate Faulty Microwave Oscillators or Amplifiers	2b	-	
50.	RESONANT CAVITIES			
	+++ b. Isolate Faulty Resonant Cavities	2b	-	
	c. Tune/Adjust	-	-	
51.	TRANSMITTERS			
	+++ b. Isolate Faulty Transmitters	2b	-	
	+++ c. Troubleshoot Circuits	2b	-	

STS #	STS ITEM	TRA TASK	3 LVL CRS	5 LVL CDC
	52. RECEIVERS			
	+++ b. Isolate Faulty Receivers		2b	-
	+++ c. Troubleshoot Circuits		2b	-
	53. TRANSMISSION POWER			
	+++ b. Calculations		B	-
	54. ANTENNAS			
	+++ c. Isolate Faulty Antennas		2b	-
	56. SPEAKERS			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Speakers		2b	-
	57. PHOTOSENSITIVE DEVICES			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Photosensitive Devices		2b	-
	58. DISPLAY TUBES			
	+++ a. Theory of Operation		B	-
	+++ b. Isolate Faulty Display Tubes		2b	-
	59. SUPPORT SUBJECTS			
	* c. Electrostatic Sensitive Device (ESD) Control		B	-

Summary of Proposed Changes

STS

The following items in the published STS were removed from the proposed STS. The item number is followed by the rationale for deletion.

1. 5f - not found in the task analysis and no corresponding occupational survey data
2. 6 - direction from HQ ATC
3. 101 - duplicate entry with item 59c in the EFA
4. 50 - combined with item 11 in the recommended changes
5. 67 - duplicate entry with item 37
6. 68 - duplicate entry with item 39
7. 72 - no longer applicable to the F-111 weapon system
8. 74 - no longer applicable to the F-111 weapon system
9. 75 - no longer applicable to the F-111 weapon system

The following items were changed or added in the specific recommendations.

1. 4d - changed "2b" to "-". Item not performed by 3-levels
2. 5e - changed "2b" to "-". Skill not identified in the analysis
3. 10f - changed "required inspections" to "visual inspections" to match the skill identified in the analysis
4. 10o-u - added to allow training on common skills and knowledge
5. 11 - removed all training from the 3-level course. Allows training through CDCs during 5-level upgrade training when it will be most useful
6. 11b - rewritten to encompass all navigation systems
7. 11d-g - moved from item 50 to centralize system principles
8. 36 - changed "Maintain other LRUs" to "Relay Packages" to identify the other LRUs maintained

EFA

All changes, except those identified as AFR 8-13 changes, are proficiency code changes. These code changes reflect the difference in current training requirements and the requirements recommended by the analysis.

The other changes are in the wording of some elements. These changes incorporate the latest EFA format.

STS Notes for TRA Task Correlation

Note 1: 60040, 60050, 60080, 60110, 60120, 60130, 60140, 60200,
60220, 60230, 60240, 60250, 60260, 60270, 60280, 60310,
60340, 60370, 60400, 60430, 60460, 60500, 60510, 60540,
60580, 60590, 60600, 60610, 60640, 60650, 60660, 60690,
60700, 60730, 60760, 60770, 60780, 60810, 60850, 60860,
60870, 60900, 60930, 60960, 60970, 60980, 60990, 61000,
61040, 61050, 61080, 61120, 61150, 61180, 61220, 61250,
61280, 61320, 61430, 61440, 61470, 61480, 61500

Note 2: 60030, 60040, 60050, 60060, 60080, 60090, 60100, 60120,
60130, 60140, 60190, 60220, 60230, 60240, 60250, 60270,
60280, 60290, 60320, 60330, 60340, 60350, 60360, 60370,
60380, 60390, 60400, 60410, 60420, 60430, 60440, 60450,
60460, 60490, 60510, 60520, 60530, 60540, 60550, 60560,
60570, 60580, 60590, 60600, 60610, 60620, 60630, 60640,
60650, 60660, 60670, 60680, 60690, 60700, 60710, 60720,
60730, 60740, 60750, 60770, 60780, 60790, 60800, 60810,
60840, 60860, 60880, 60890, 60900, 60910, 60920, 60930,
60940, 60950, 60970, 60980, 60990, 61000, 61010, 61030,
61040, 61060, 61070, 61080, 61110, 61120, 61130, 61140,
61170, 61180, 61190, 61200, 61210, 61220, 61240, 61250,
61260, 61270, 61280, 61310, 61320, 61330, 61420, 61430,
61440, 61470, 61480, 61490

Note 3: 60030, 60040, 60050, 60060, 60080, 60090, 60110, 60120,
60130, 60140, 60190, 60200, 60220, 60230, 60240, 60250,
60260, 60270, 60280, 60290, 60300, 60310, 60320, 60330,
60340, 60350, 60360, 60370, 60380, 60390, 60400, 60410,
60420, 60430, 60440, 60450, 60460, 60490, 60500, 60510,
60520, 60530, 60540, 60550, 60560, 60570, 60580, 60590,
60600, 60610, 60620, 60630, 60640, 60650, 60660, 60670,
60680, 60690, 60700, 60710, 60720, 60730, 60740, 60750,
60760, 60770, 60780, 60790, 60800, 60810, 60830, 60840,
60850, 60860, 60870, 60880, 60890, 60900, 60910, 60920,
60930, 60940, 60950, 60960, 60970, 60980, 60990, 61000,
61010, 61020, 61030, 61040, 61060, 61070, 61080, 61090,
61110, 61120, 61130, 61140, 61150, 61170, 61180, 61200,
61210, 61220, 61230, 61240, 61250, 61260, 61270, 61280,
61290, 61300, 61310, 61320, 61330, 61370, 61380, 61390,
61400, 61410, 61420, 61430, 61440, 61450, 61460, 61490,
61500, 61510, 61520, 61530

Note 4: 60030, 60060, 60100, 60120, 60130, 60140, 60190, 60250,
60260, 60270, 60280, 60300, 60330, 60360, 60390, 60420,
60450, 60490, 60530, 60570, 60600, 60610, 60630, 60650,
60660, 60680, 60700, 60720, 60750, 60770, 60780, 60800,
60840, 60890, 60920, 60950, 60970, 60990, 61000, 61030,
61070, 61110, 61140, 61170, 61210, 61240, 61310, 61340,
61360, 61370, 61420, 61490, 61530

Note 5: 60030, 60060, 60100, 60120, 60190, 60240, 60250, 60260,
60270, 60280, 60300, 60330, 60360, 60390, 60420, 60450,
60490, 60530, 60570, 60600, 60610, 60630, 60650, 60660,
60680, 60700, 60720, 60750, 60770, 60780, 60800, 60840,
60880, 60890, 60920, 60950, 60970, 60990, 61000, 61030,
61070, 61110, 61140, 61170, 61210, 61240, 61270, 61310,
61350, 61360, 61370, 61420, 61490, 61530

Note 6: 60030, 60190, 60200, 60330, 60340, 60360, 60370, 60390,
60400, 60420, 60430, 60450, 60460, 60490, 60500, 60530,
60570, 60890, 60920, 61110, 61140, 61240, 61250

Note 7: 60200, 60320, 60620, 60630, 60650, 60790, 60800, 60840,
60850, 60890, 60920, 60980, 61240, 61370

Note 8: 60060, 60650, 60670, 60680, 60810, 60950, 61370

Note 9: 61020, 61030, 61060, 61070, 61080, 61240

Note 10: 60040, 60050, 60200, 60220, 60230, 60240, 60250, 60280,
60310, 60340, 60370, 60400, 60430, 60460, 60500, 60510,
60540, 60580, 60590, 60610, 60640, 60650, 60690, 60730,
60760, 60770, 60810, 60850, 60860, 60890, 60900, 60930,
60950, 60960, 60970, 60980, 61000, 61010, 61040, 61080,
61150, 61180, 61190, 61220, 61250, 61280, 61290, 61320,
61500

Note 11: 60030, 60190, 61110, 61140, 61370

APPENDIX D
ELECTRONIC FUNDAMENTALS/APPLICATION (EFA) TRA TASK CORRELATION

The numbers in the EFA No. column, for the most part, relate to the element numbers in the EFA. In places, the numbers end in an "x," "y," or "z." On these occasions, the numbers do not relate directly to the EFA line items, but do relate to the EFA major fundamental requirements. Beside each EFA number is the activity (A), skill (S), or knowledge (K) statement used in the TRA. The numbers below the statements refer to the TRA tasks where the activity, skill, or knowledge is required.

EFA No. TRA TASK STATEMENT AND NUMBERS

1A K USE METRIC NOTATION
60270, 60640, 60710, 60720, 60730, 60780, 61110, 61140,
61370

2A K APPLY DC CIRCUIT THEORY OF OPERATION
60030, 60190, 60240, 60250, 60260, 60270, 60280, 60300,
60330, 60360, 60490, 60530, 60570, 60600, 60630, 60650,
60660, 60680, 60700, 60720, 60750, 60770, 60800, 60840,
60890, 60920, 60950, 60970, 60990, 61000, 61110, 61140,
61210, 61240, 61270, 61310, 61340, 61420

2A K APPLY AC CIRCUIT THEORY OF OPERATION
60030, 60190, 60240, 60250, 60260, 60280, 60300, 60330,
60360, 60490, 60530, 60570, 60600, 60630, 60660, 60680,
60700, 60720, 60750, 60770, 60800, 60840, 60890, 60970,
60990, 61000, 61110, 61140, 61240, 61270, 61310, 61340,
61420

2B K TROUBLESHOOT DC CIRCUITS
60030, 60190, 60240, 60250, 60300, 60330, 60570, 60650,
60750, 60770, 60800, 60840, 60970, 60990, 61000, 61110,
61140, 61210, 61240, 61270, 61310, 61370

2B K TROUBLESHOOT AC CIRCUITS
60030, 60190, 60240, 60250, 60260, 60300, 60330, 60570,
60750, 60770, 60800, 60970, 60990, 61000, 61110, 61140,
61240, 61270, 61310, 61370

3A K PERFORM DC CIRCUIT CALCULATIONS
60800

3B K PERFORM AC CIRCUIT CALCULATIONS
60800, 61110

EFA No. TRA TASK STATEMENT AND NUMBERS

4A K APPLY RESISTOR THEORY OF OPERATION
60030, 60100, 60120, 60190, 60250, 60260, 60270, 60280,
60300, 60330, 60360, 60490, 60530, 60570, 60600, 60630,
60800, 60840, 60890, 60950, 60970, 60990, 61000, 61110,
61140, 61240, 61270, 61310, 61340, 61420, 61490

4B K ISOLATE FAULTY RESISTORS
60030, 60100, 60190, 60250, 60260, 60270, 60280, 60300,
60330, 60360, 60490, 60530, 60570, 60800, 60840, 60890,
60950, 60970, 60990, 61110, 61140, 61240, 61270, 61310,
61370, 61420, 61490

4C K INTERPRET RESISTOR COLOR CODES
60190, 60490, 60800, 61110, 61140

5A K APPLY RELAY THEORY OF OPERATION
60030, 60190, 60250, 60280, 60300, 60360, 60490, 60530,
60570, 60630, 60750, 60770, 60800, 60840, 60890, 60970,
60990, 61000, 61030, 61070, 61110, 61140, 61210, 61270,
61310, 61340, 61420, 61490

5B K ISOLATE FAULTY RELAYS
60030, 60190, 60250, 60280, 60300, 60360, 60490, 60530,
60570, 60630, 60800, 60840, 60890, 60970, 60990, 61000,
61030, 61070, 61110, 61140, 61210, 61270, 61310, 61370,
61420, 61490

5C K APPLY SOLENOID THEORY OF OPERATION
60190, 60280, 60330, 60530, 60890, 61310, 61340

5D K ISOLATE FAULTY SOLENOIDS
60190, 60280, 60330, 60530, 60890, 61310

5Y1 K TROUBLESHOOT RELAYS
60030, 60250, 60300, 60490, 60570, 60800, 60970, 61000,
61110, 61140, 61210, 61270, 61310

5Y2 K TROUBLESHOOT SOLENOIDS
60330, 61310

6A K APPLY INDUCTOR THEORY OF OPERATION
60030, 60300, 60490, 60530, 60570, 60630, 60660, 60800,
60840, 61110, 61140, 61240, 61310, 61340

EPA No. TRA TASK STATEMENT AND NUMBERS

6B K ISOLATE FAULTY INDUCTORS
60030, 60300, 60490, 60530, 60570, 60630, 60660, 60800,
60840, 61110, 61140, 61240, 61310

6C K PERFORM INDUCTOR CALCULATIONS
61110, 61140

6Y K TROUBLESHOOT INDUCTORS
60030, 60300, 60490, 60570, 60800, 61110, 61140, 61240,
61310

7A K APPLY CAPACITOR THEORY OF OPERATION
60030, 60120, 60190, 60250, 60260, 60270, 60280, 60300,
60330, 60360, 60490, 60530, 60570, 60630, 60660, 60800,
60840, 60890, 60990, 61110, 61140, 61310, 61340

7B K ISOLATE FAULTY CAPACITORS
60120, 60190, 60250, 60260, 60270, 60280, 60300, 60330,
60360, 60490, 60570, 60630, 60660, 60800, 60840, 60890,
60990, 61110, 61140, 61310

8A K APPLY TRANSFORMER THEORY OF OPERATION
60030, 60120, 60190, 60300, 60490, 60530, 60570, 60630,
60800, 60840, 60860, 60970, 60990, 61110, 61140, 61210,
61240, 61270, 61310, 61340

8B K ISOLATE FAULTY TRANSFORMERS
60030, 60190, 60250, 60300, 60490, 60530, 60570, 60630,
60800, 60840, 60860, 60970, 60990, 61110, 61140, 61210,
61240, 61270, 61310

8C K PERFORM TRANSFORMER CALCULATIONS
60800, 61110, 61140

8Y K TROUBLESHOOT TRANSFORMERS
60250, 60300, 60490, 60570, 60800, 60970, 61110, 61140,
61240, 61270, 61310

9A K APPLY THREE-PHASE TRANSFORMER THEORY OF OPERATION
60030, 60190, 60250, 60300, 60490, 60530, 60570, 60630,
60800, 61110, 61140, 61240, 61270, 61310, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS
9B	K ISOLATE FAULTY THREE-PHASE TRANSFORMERS 60030, 60120, 60190, 60250, 60300, 60490, 60530, 60630, 60800, 61110, 61140, 61240, 61270, 61310
9Y	K TROUBLESHOOT 3-PHASE TRANSFORMERS 60030, 60300, 60490, 60800, 61110, 61140, 61240, 61270, 61310
10A	K APPLY DC MOTOR THEORY OF OPERATION 60280, 61240, 61310, 61340
10B	K ISOLATE FAULTY DC MOTORS 60280, 61240, 61310
10C	K TROUBLESHOOT DC MOTORS 61240, 61310
11A	K APPLY AC MOTOR THEORY OF OPERATION 60280, 60330, 60800, 61030, 61110, 61140, 61310, 61340
11B	K ISOLATE FAULTY AC MOTORS 60280, 60330, 60800, 61030, 61110, 61140, 61270, 61310
11C	K TROUBLESHOOT AC MOTORS 60330, 60800, 61110, 61140, 61270, 61310
12A	K APPLY DC GENERATOR THEORY OF OPERATION 60030, 61240, 61340
12B	K ISOLATE FAULTY DC GENERATORS 60030, 61240, 61370
12C	K TROUBLESHOOT DC GENERATORS 60030, 61240
13A	K APPLY AC GENERATOR THEORY OF OPERATION 60030, 60600, 61240, 61270, 61340
13B	K ISOLATE FAULTY AC GENERATORS 60030, 61240, 61270

EPA No.	TRA TASK STATEMENT AND NUMBERS
13C	K TROUBLESHOOT AC GENERATORS 60030, 61240, 61270
14A	K APPLY ALTERNATOR THEORY OF OPERATION 61340
15A	K APPLY SYNCHRO/SERVO THEORY OF OPERATION 60030, 60100, 60190, 60250, 60490, 60530, 61110, 61140 61210, 61340
15B	K ISOLATE FAULTY SYNCHROS/SERVOS 60030, 60250, 60490, 60530, 61110, 61140, 61210
15C	K TROUBLESHOOT SYNCHROS/SERVOS 60030, 60250, 60490, 61110, 61140
16A	K APPLY CHOPPER (SYNCHROUS VIBRATOR) THEORY OF OPERATION 60800, 60840, 60950, 61110, 61140, 61240, 61340
16B	K ISOLATE FAULTY CHOPPERS (SYNCHRONOUS VIBRATORS) 60800, 60840, 60950, 61110, 61140, 61240
16Y	K TROUBLESHOOT CHOPPERS (SYNCHROUS VIBRATORS) 60800, 61110, 61140, 61240
17A	K APPLY TRANSDUCER THEORY OF OPERATION 60300, 60530, 61110, 61140, 61340
17B	K ISOLATE FAULTY TRANSDUCERS 60300, 60530, 61110, 61140
17Y	K TROUBLESHOOT TRANSDUCERS 60300, 61110, 61140
18A	K APPLY METER MOVEMENT THEORY OF OPERATION 60300, 60530, 60840, 61110, 61140
18B	K ISOLATE FAULTY METER MOVEMENTS 60300, 60530, 60840, 61110, 61140
18Y	K TROUBLESHOOT METER MOVEMENTS 60300, 61110, 61140

EFA No.	TRA TASK STATEMENT AND NUMBERS
19A	K APPLY SOLID STATE DIODE THEORY OF OPERATION 60030, 60100, 60120, 60250, 60260, 60300, 60330, 60360, 60490, 60530, 60570, 60600, 60630, 60650, 60800, 60840, 60890, 60950, 60970, 60990, 61000, 61030, 61070, 61110, 61140, 61170, 61210, 61240, 61270, 61310, 61340, 61490
19B	K ISOLATE FAULTY SOLID STATE DIODES 60030, 60100, 60120, 60250, 60260, 60300, 60330, 60360, 60490, 60530, 60570, 60630, 60650, 60800, 60840, 60890, 60950, 60970, 60990, 61030, 61070, 61110, 61140, 61170, 61210, 61240, 61270, 61310, 61490
19C	K INTERPRET SOLID STATE DIODE SPECIFICATIONS 61110, 61140
19D	K INTERPRET SOLID STATE DIODE COLOR CODES 61110, 61140
20A	K APPLY BIPOLAR JUNCTION TRANSISTOR THEORY OF OPERATION 60030, 60530, 60570, 60600, 60630, 60650, 60800, 60840, 60890, 60990, 61110, 61140, 61310, 61340
20B	K ISOLATE FAULTY BIPOLAR JUNCTION TRANSISTORS 60030, 60530, 60570, 60630, 60650, 60800, 60840, 60890, 60990, 61140, 61310
20C	K INTERPRET BIPOLAR JUNCTION TRANSISTOR SPECIFICATIONS 61110, 61140
20Y	K TROUBLESHOOT BIPOLAR JUNCTION TRANSISTORS 60030, 60570, 60650, 60800, 61110, 61140, 61310
21A	K APPLY INTEGRATED CIRCUIT THEORY OF OPERATION 60030, 60250, 60260, 60270, 60300, 60530, 60570, 60630, 60650, 60750, 60770, 60800, 60840, 60890, 60950, 61030, 61110, 61140, 61240, 61270, 61310, 61340, 61420
21B	K ISOLATE FAULTY INTEGRATED CIRCUITS 60030, 60250, 60260, 60270, 60300, 60530, 60570, 60630, 60650, 60750, 60770, 60800, 60840, 60890, 60950, 61030, 61110, 61140, 61240, 61270, 61310, 61420
21C	K INTERPRET INTEGRATED CIRCUIT SPECIFICATIONS 61030, 61110, 61140

EPA No. TRA TASK STATEMENT AND NUMBERS

22A K APPLY SCR THEORY OF OPERATION
60250, 60300, 60800, 60840, 60890, 61030, 61110, 61140,
61210, 61240, 61310, 61340, 61420

22A K APPLY ZENER DIODE THEORY OF OPERATION
60030, 60250, 60270, 60300, 60570, 60630, 60800, 60840,
60890, 61030, 61110, 61140, 61210, 61240, 61310, 61340,
61420

22A K APPLY TUNNEL DIODE THEORY OF OPERATION
60030, 60270, 60300, 60630, 61030, 61110, 61140, 61340,
61420

22A K APPLY LED THEORY OF OPERATION
60250, 60270, 60300, 60630, 60650, 60800, 60860, 60970,
61000, 61030, 61110, 61140, 61210, 61310, 61340, 61420

22A K APPLY LCD THEORY OF OPERATION
60300, 60530, 61110, 61140, 61340, 61420

22A K APPLY UJT THEORY OF OPERATION
60300, 60840, 61340, 61420

22A K APPLY JFET THEORY OF OPERATION
60250, 60300, 60840, 61110, 61140, 61340, 61420

22A K APPLY MOSFET THEORY OF OPERATION
60250, 60300, 60800, 60840, 61110, 61140, 61340, 61420

22B K ISOLATE FAULTY SCR_s
60250, 60300, 60800, 60840, 60890, 61110, 61140, 61210,
61240, 61310, 61420

22B K ISOLATE FAULTY ZENER DIODES
60030, 60250, 60270, 60300, 60570, 60630, 60800, 60840,
60890, 61110, 61140, 61210, 61240, 61310, 61420

22B K ISOLATE FAULTY TUNNEL DIODES
60030, 60270, 60300, 60630, 61110, 61140, 61420

EFA No.	TRA TASK STATEMENT AND NUMBERS
22B	K ISOLATE FAULTY LEDs 60250, 60270, 60300, 60630, 60650, 60800, 60860, 60970, 61110, 61140, 61210, 61310, 61420
22B	K ISOLATE FAULTY LCDs 60300, 60530, 61110, 61140, 61420
22B	K ISOLATE FAULTY UJTs 60300, 60840, 61420
22B	K ISOLATE FAULTY JFETs 60250, 60300, 60840, 61110, 61140, 61420
22B	K ISOLATE FAULTY MOSFETs 60250, 60300, 60800, 60840, 61110, 61140, 61420
23A	K APPLY ELECTRON TUBE THEORY OF OPERATION 60890, 61140, 61340
23B	K ISOLATE FAULTY ELECTRON TUBES 60890, 61140
23C	K INTERPRET ELECTRON TUBE SPECIFICATIONS 61140
24A	K APPLY CRT THEORY OF OPERATION 60530, 60800, 60111, 61140, 61340
24B	K ISOLATE FAULTY CRTs 60530, 60800, 60111, 61140
25A	S SOLDER/DESOLDER TERMINAL CONNECTIONS 60030, 60040, 60080, 60110, 60120, 60130, 60140, 60200, 60230, 60240, 60250, 60260, 60270, 60280, 60300, 60310, 60340, 60370, 60400, 60430, 60460, 60500, 60530, 60540, 60570, 60580, 60600, 60610, 60640, 60650, 60720, 60730, 60760, 60770, 60780, 60800, 60810, 60840, 60850, 60860, 60900, 60930, 60960, 60970, 60990, 61000, 61040, 61080, 61120, 61150, 61180, 61220, 61240, 61250, 61280, 61320, 61390, 61400, 61430, 61440, 61500, 61510, 61530

EPA No. TRA TASK STATEMENT AND NUMBERS

25B S SOLDER/DESOLDER PC BOARDS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60230,
60240, 60250, 60260, 60270, 60280, 60300, 60310, 60340,
60370, 60400, 60430, 60460, 60500, 60540, 60570, 60580,
60600, 60610, 60640, 60650, 60760, 60770, 60780, 60810,
60850, 60860, 60900, 60930, 60960, 60970, 60990, 61000,
61040, 61080, 61120, 61150, 61180, 61220, 61240, 61250,
61280, 61320, 61400, 61430, 61500, 61510, 61530

25C S SOLDER/DESOLDER MULTIPIN CONNECTORS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60240,
60250, 60260, 60270, 60280, 60310, 60340, 60370, 60400,
60430, 60460, 60500, 60540, 60580, 60600, 60610, 60640,
60650, 60760, 60770, 60780, 60810, 60850, 60860, 60900,
60930, 60960, 60970, 60990, 61000, 61040, 61080, 61120,
61150, 61180, 61220, 61250, 61280, 61320, 61400, 61430,
61440, 61500, 61510, 61530

25D S SOLDER/DESOLDER COAXIAL CONNECTORS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60240,
60250, 60260, 60270, 60280, 60310, 60340, 60370, 60400,
60430, 60460, 60500, 60540, 60580, 60600, 60610, 60640,
60650, 60760, 60770, 60780, 60810, 60850, 60860, 60900,
60930, 60960, 60970, 60990, 61000, 61040, 61080, 61120,
61150, 61180, 61220, 61250, 61280, 61320, 61400, 61430,
61440, 61500, 61510, 61530

26A S ASSEMBLE SOLDERLESS CRIMP CONNECTORS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60250,
60260, 60270, 60280, 60310, 60340, 60370, 60400, 60430,
60460, 60500, 60540, 60580, 60600, 60610, 60640, 60650,
60760, 60770, 60780, 60810, 60850, 60860, 60900, 60930,
60960, 60970, 60990, 61000, 61040, 61080, 61120, 61150,
61180, 61220, 61250, 61280, 61320, 61430, 61440, 61500,
61510, 61530

26B S ASSEMBLE SOLDERLESS COAXIAL CONNECTORS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60250,
60260, 60270, 60280, 60310, 60340, 60370, 60400, 60430,
60460, 60500, 60540, 60580, 60600, 60610, 60640, 60650,
60760, 60770, 60780, 60810, 60850, 60860, 60900, 60930,
60960, 60970, 60990, 61000, 61040, 61080, 61120, 61150,
61180, 61220, 61250, 61280, 61320, 61430, 61440, 61500,
61510, 61530

EFA No. TRA TASK STATEMENT AND NUMBERS

26C S ASSEMBLE SOLDERLESS MULTIPIN CONNECTORS
60040, 60080, 60110, 60120, 60130, 60140, 60200, 60250,
60260, 60270, 60280, 60310, 60340, 60370, 60400, 60430,
60460, 60500, 60540, 60580, 60600, 60610, 60640, 60650,
60760, 60770, 60780, 60810, 60850, 60860, 60900, 60930,
60960, 60970, 60990, 61000, 61040, 61080, 61120, 61150,
61180, 61220, 61250, 61280, 61320, 61430, 61440, 61500,
61510, 61530

27A S USE ANALOG MULTIMETER
60030, 60120, 60190, 60230, 60240, 60250, 60260, 60270,
60280, 60350, 60430, 60490, 60530, 60540, 60560, 60570,
60610, 60620, 60630, 60700, 60750, 60770, 60860, 60990,
61020, 61030, 61070, 61080, 61110, 61170, 61200, 61210,
61250, 61270, 61280, 61310, 61320, 61330, 61370, 61420,
61490, 61500

27B S USE OSCILLOSCOPE
60010, 60030, 60040, 60060, 60120, 60130, 60200, 60240,
60250, 60260, 60270, 60300, 60320, 60330, 60350, 60360,
60490, 60500, 60530, 60540, 60560, 60570, 60590, 60600,
60610, 60620, 60630, 60650, 60660, 60670, 60680, 60700,
60710, 60720, 60750, 60760, 60770, 60780, 60790, 60800,
60810, 60840, 60860, 60880, 60890, 60920, 60950, 60980,
61000, 61020, 61030, 61060, 61070, 61080, 61110, 61230,
61270, 61310, 61320, 61330, 61370, 61420

27C S USE SIGNAL GENERATOR
60190, 60570, 60590, 60620, 60630, 60650, 60670, 60680,
60990, 61020, 61030, 61070, 61080, 61090, 61110, 61230,
61240, 61420

27D S USE FREQUENCY COUNTER
60030, 60040, 60200, 60630, 60650, 60710, 60720, 60760,
60770, 60790, 60830, 60840, 60850, 60920, 61020, 61030,
61070, 61080, 61090, 61110, 61230, 61240, 61270, 61310,
61320, 61330, 61370

27E S USE SPECTRUM ANALYZER
60030, 60160, 60190, 60200, 60320, 60670, 60680, 60710,
60720, 60780, 60840, 61020, 61030, 61070, 61080, 61090,
61110, 61230, 61370

27F S USE FIELD STRENGTH TESTER
60190

EFA No. TRA TASK STATEMENT AND NUMBERS

27G S USE DIGITAL MULTIMETER
60030, 60040, 60060, 60120, 60130, 60140, 60190, 60200,
60240, 60250, 60260, 60270, 60280, 60300, 60320, 60330,
60340, 60350, 60360, 60430, 60470, 60480, 60490, 60530,
60540, 60560, 60570, 60600, 60610, 60620, 60630, 60650,
60660, 60700, 60710, 60720, 60750, 60770, 60780, 60790,
60800, 60810, 60840, 60850, 60860, 60950, 60980, 60990,
61000, 61020, 61030, 61060, 61070, 61080, 61110, 61170,
61200, 61210, 61230, 61240, 61250, 61270, 61280, 61310,
61320, 61330, 61370, 61420, 61490, 61500

27H S USE DIGITAL LOGIC PROBE
60030, 60190, 60250, 60570, 60630, 60800, 61230, 61270,
61370

27I S USE CAPACITOR TESTER
60030, 60190, 60300, 60630, 60800

27J S USE CAPACITOR SUBSTITUTION BOX
60030

27K S USE DC RESTORER
60190

27L S USE LOGIC CURRENT TRACER
60190, 60250

27M S USE TUBE TESTER
60570

27N S USE LOGIC PULSER
60190, 60250

27O S USE LOGIC ANALYZER
60190, 60250

27P S USE SIGNATURE ANALYZER
60190

EFA No.	TRA TASK STATEMENT AND NUMBERS
27Q	S USE REFLECTOMETER 60030, 60040, 60080, 60110, 60120, 60130, 60140, 60190, 60200, 60250, 60260, 60270, 60280, 60310, 60330, 60340, 60370, 60400, 60430, 60460, 60500, 60540, 60580, 60600, 60610, 60640, 60650, 60760, 60770, 60780, 60810, 60850, 60860, 60900, 60930, 60960, 60970, 60990, 61000, 61040, 61080, 61120, 61150, 61180, 61220, 61250, 61280, 61320, 61420, 61430, 61440, 61500, 61510
28A1	K APPLY TRANSISTOR AMPLIFIER CIRCUIT THEORY OF OPERATION 60030, 60190, 60250, 60270, 60300, 60360, 60490, 60530, 60570, 60600, 60800, 60840, 60890, 60920, 60990, 61030, 61110, 61140, 61240, 61340
28A2	K APPLY TRANSISTOR AMPLIFIER STABILIZATION CIRCUIT THEORY OF OPERATION 60190, 60300, 60490, 60530, 60630, 60800, 60840, 61110, 61140, 61240, 61340
28A3	K APPLY TRANSISTOR AMPLIFIER COUPLING CIRCUIT THEORY OF OPERATION 60190, 60260, 60300, 60630, 60800, 60840, 60920, 60950, 61110, 61140, 61240, 61340
28B	K ISOLATE FAULTY TRANSISTOR AMPLIFIER CIRCUITS 60030, 60250, 60270, 60300, 60360, 60490, 60530, 60570, 60800, 60840, 60890, 60920, 60950, 60990, 61030, 61110, 61140, 61240
28B	K ISOLATE FAULTY TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS 60100, 60190, 60300, 60490, 60530, 60630, 60800, 60840, 61110, 61140, 61240
28B	K ISOLATE FAULTY TRANSISTOR AMPLIFIER COUPLING CIRCUITS 60190, 60260, 60300, 60630, 60800, 60840, 60920, 61110, 61140, 61240
28C	K TROUBLESHOOT TRANSISTOR AMPLIFIER CIRCUITS 60030, 60250, 60300, 60490, 60570, 60800, 61030, 61110, 61140, 61240
28C	K TROUBLESHOOT TRANSISTOR AMPLIFIER STABILIZATION CIRCUITS 60300, 60490, 60800, 61110, 61140, 61240

EFA No.	TRA TASK STATEMENT AND NUMBERS
28C	K TROUBLESHOOT TRANSISTOR AMPLIFIER COUPLING CIRCUITS 60260, 60300, 60800, 61110, 61140, 61240
29A	K APPLY ELECTRON TUBE AMPLIFIER THEORY OF OPERATION 60420, 60570, 60840, 60890, 61140, 61240, 61340
29B	K ISOLATE FAULTY ELECTRON TUBE AMPLIFIERS 60420, 60570, 60840, 60890, 61140, 61240, 61370
29C	K TROUBLESHOOT ELECTRON TUBE AMPLIFIERS 61140, 61240
30A	K APPLY OPERATIONAL AMPLIFIER THEORY OF OPERATION 60030, 60250, 60300, 60330, 60530, 60630, 60800, 60840, 60890, 60950, 60970, 61030, 61110, 61140, 61240, 61310, 61340, 61420
30B	K ISOLATE FAULTY OPERATIONAL AMPLIFIERS 60030, 60250, 60300, 60330, 60530, 60630, 60800, 60840, 60890, 60950, 60970, 61030, 61110, 61140, 61240, 61310, 61420
30C	K TROUBLESHOOT OPERATIONAL AMPLIFIERS 60030, 60250, 60300, 60330, 60800, 60970, 61110, 61140, 61240, 61310
31A	K APPLY MAGNETIC AMPLIFIER THEORY OF OPERATION 61340
33A	K APPLY POWER SUPPLY THEORY OF OPERATION 60030, 60190, 60250, 60260, 60300, 60330, 60490, 60570, 60630, 60660, 60800, 60860, 60890, 60950, 60990, 61030, 61110, 61140, 61170, 61310, 61340
33A1	K APPLY POWER SUPPLY RECTIFIER THEORY OF OPERATION 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60660, 60800, 60890, 60950, 60970, 61110, 61140, 61240, 61310, 61340
33A2	K APPLY POWER SUPPLY FILTER THEORY OF OPERATION 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60660, 60800, 60840, 60890, 60950, 61070, 61110, 61140, 61240, 61310, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS	
33B	K	ISOLATE FAULTY POWER SUPPLIES 60030, 60190, 60250, 60260, 60300, 60330, 60490, 60570, 60630, 60660, 60800, 60860, 60890, 60950, 60990, 61030, 61110, 61140, 61170, 61240, 61310, 61370
33B1	K	ISOLATE FAULTY POWER SUPPLY RECTIFIERS 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60660, 60800, 60890, 60950, 60970, 61110, 61140, 61240, 61310
33B2	K	ISOLATE FAULTY POWER SUPPLY FILTERS 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60660, 60800, 60840, 60890, 60950, 61070, 61110, 61140, 61240, 61310
33C	K	TROUBLESHOOT POWER SUPPLY CIRCUITS 60030, 60190, 60260, 60300, 60330, 60490, 60570, 60610, 60660, 60800, 61110, 61140, 61240, 61310
33C1	K	TROUBLESHOOT POWER SUPPLY RECTIFIERS 60030, 60190, 60300, 60330, 60570, 60660, 60800, 60970, 61110, 61140, 61240, 61310
33C2	K	TROUBLESHOOT POWER SUPPLY FILTERS 60030, 60190, 60300, 60330, 60570, 60660, 60800, 61110, 61140, 61240, 61310
34A	K	APPLY VOLTAGE REGULATOR THEORY OF OPERATION 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60800, 60840, 60890, 60920, 60950, 60970, 60990, 61030, 61110, 61140, 61240, 61310, 61340
34B	K	ISOLATE FAULTY VOLTAGE REGULATORS 60030, 60190, 60250, 60300, 60330, 60530, 60570, 60630, 60800, 60840, 60890, 60920, 60970, 60990, 61110, 61140, 61310
34C	K	TROUBLESHOOT VOLTAGE REGULATORS 60030, 60250, 60300, 60330, 60570, 60800, 60970, 60990, 61110, 61140, 61240, 61310
35A	K	APPLY RCL CIRCUIT THEORY OF BASIC OPERATION 60030, 60190, 60250, 60300, 60530, 60570, 60630, 60680, 60770, 60840, 61110, 61140, 61240, 61310, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS
35B	K APPLY RCL CIRCUIT THEORY OF RESONANT OPERATION 60030, 60300, 60530, 60570, 60660, 60700, 60750, 60840, 61110, 61140, 61240, 61310, 61340
35C	K TROUBLESHOOT RCL CIRCUITS 60190, 60300, 60570, 60750, 60840, 61110, 61140, 61310
35D	K PERFORM RCL CIRCUIT CALCULATIONS 60570, 60600, 60810, 61110, 61140
35X	K ISOLATE FAULTY RCL CIRCUITS 60190, 60300, 60530, 60570, 60630, 60750, 60770, 60800, 60840, 61110, 61140, 61310, 61420
36A	K APPLY FREQUENCY SENSITIVE FILTER THEORY OF OPERATION 60030, 60300, 60330, 60530, 60570, 60630, 60720, 60800, 60840, 60920, 61030, 61070, 61240, 61310, 61340
36B	K ISOLATE FAULTY FREQUENCY SENSITIVE FILTERS 60030, 60300, 60330, 60530, 60570, 60630, 60720, 60800, 60840, 60920, 61030, 61070, 61240, 61310
36C	K TROUBLESHOOT FREQUENCY SENSITIVE FILTERS 60030, 60330, 60570, 60800, 61240, 61310
36D	K PERFORM FREQUENCY SENSITIVE FILTER CALCULATIONS 61240
37A1	K APPLY OSCILLATOR CIRCUIT THEORY OF OPERATION 60030, 60190, 60270, 60300, 60330, 60570, 60590, 60630, 60800, 60840, 60890, 61110, 61140, 61240, 61340
37A2	K APPLY MULTIVIBRATOR CIRCUIT THEORY OF OPERATION 60270, 60300, 60800, 60840, 60890, 61110, 61140, 61240, 61340
37A3	K APPLY WAVESHAPING CIRCUIT THEORY OF OPERATION 60030, 60190, 60250, 60300, 60570, 60630, 60800, 60840, 60890, 61110, 61140, 61240, 61270, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS
37B	K ISOLATE FAULTY OSCILLATOR CIRCUITS 60030, 60190, 60270, 60300, 60330, 60570, 60630, 60800, 60840, 60890, 61110, 61140, 61240
37B	K ISOLATE FAULTY MULTIVIBRATOR CIRCUITS 60270, 60300, 60800, 60840, 60890, 61110, 61140, 61240,
37B	K ISOLATE FAULTY WAVESHAPING CIRCUITS 60030, 60190, 60250, 60300, 60570, 60630, 60800, 60840, 60890, 61110, 61140, 61240, 61270
37C	K TROUBLESHOOT WAVE GENERATING CIRCUIT OSCILLATORS 60030, 60300, 60570, 60800, 61110, 61140, 61240
37C	K TROUBLESHOOT WAVE GENERATING CIRCUIT MULTIVIBRATORS 60300, 60330, 60800, 61110, 61140, 61240
37C	K TROUBLESHOOT WAVESHAPING CIRCUITS 60030, 60300, 60570, 60800, 61110, 61140, 61240, 61270
38A	K APPLY LIMITER CIRCUIT DIODE THEORY OF OPERATION 60030, 60190, 60250, 60260, 60300, 60330, 60490, 60530, 60570, 60600, 60630, 60650, 60660, 60800, 60840, 60890, 60970, 60990, 61110, 61140, 61240, 61310, 61340
38A	K APPLY LIMITER CIRCUIT ZENER DIODE THEORY OF OPERATION 60030, 60190, 60250, 60260, 60300, 60330, 60490, 60530, 60570, 60600, 60630, 60650, 60800, 60840, 60890, 60970, 61110, 61140, 61240, 61310, 61340
38A	K APPLY LIMITER CIRCUIT TRANSISTOR THEORY OF OPERATION 60030, 60190, 60240, 60250, 60260, 60300, 60330, 60490, 60530, 60570, 60600, 60630, 60660, 60800, 60840, 60890, 60970, 60990, 61110, 61140, 61210, 61240, 61310, 61340
38B	K ISOLATE FAULTY LIMITER CIRCUIT DIODES 60030, 60190, 60250, 60260, 60300, 60330, 60490, 60530, 60570, 60630, 60650, 60660, 60800, 60840, 60890, 60970, 60990, 61110, 61140, 61240, 61310

EFA No. TRA TASK STATEMENT AND NUMBERS

38B K ISOLATE FAULTY LIMITER CIRCUIT ZENER DIODES
60030, 60190, 60250, 60260, 60300, 60330, 60490, 60530,
60570, 60630, 60650, 60800, 60840, 60890, 60970, 60990,
61110, 61140, 61240, 61310

38B K ISOLATE FAULTY LIMITER TRANSISTOR CIRCUITS
60030, 60240, 60250, 60260, 60300, 60330, 60490, 60530,
60570, 60630, 60660, 60800, 60840, 60890, 60970, 60990,
61110, 61140, 61210, 61240, 61310

38C K TROUBLESHOOT LIMITER CIRCUIT DIODES
60030, 60250, 60260, 60300, 60330, 60490, 60570, 60650,
60660, 60800, 60970, 61110, 61140, 61240, 61310

38C K TROUBLESHOOT LIMITER CIRCUIT ZENER DIODES
60030, 60250, 60260, 60300, 60330, 60490, 60570, 60650,
60800, 60970, 61110, 61140, 61240, 61310

38C K TROUBLESHOOT LIMITER CIRCUIT TRANSISTORS
60030, 60240, 60250, 60260, 60300, 60330, 60490, 60570,
60660, 60800, 60970, 61110, 61140, 61210, 61240, 61310

39A K APPLY CLAMPER CIRCUIT THEORY OF OPERATION
60530, 60630, 60660, 60800, 60840, 60920, 60990, 61110,
61140, 61240, 61310

39B K ISOLATE FAULTY CLAMPER CIRCUITS
60530, 60630, 60660, 60800, 60840, 60920, 60990, 61110,
61140, 61240, 61310

39C K TROUBLESHOOT CLAMPER CIRCUITS
60800, 60990, 61110, 61140, 61240, 61310

40A K PERFORM BINARY CONVERSIONS
60250, 60270, 60490, 60800, 60860, 61030, 61110, 61140,
61170, 61270

40A K PERFORM OCTAL CONVERSIONS
60250, 60270, 60570, 60790, 61110, 61140, 61370

40A K PERFORM HEXADECIMAL CONVERSIONS
60250, 60270, 61030, 61110, 61140, 61170, 61370

EFA No.	TRA TASK STATEMENT AND NUMBERS	
40B	K	PERFORM BINARY MATH OPERATIONS 60270, 60490, 60800, 60860, 61110, 61140, 61170
40B	K	PERFORM OCTAL MATH OPERATIONS 60270, 60800, 61110, 61140
40B	K	PERFORM HEXADECIMAL MATH OPERATIONS 60270, 61110, 61140
41A	K	APPLY MAIN LOGIC GATE THEORY OF OPERATION 60030, 60190, 60250, 60260, 60270, 60300, 60330, 60570, 60630, 60700, 60750, 60770, 60800, 60840, 60890, 60950, 60970, 61030, 61070, 61110, 61140, 61240, 61310, 61340
41A	K	APPLY FLIP-FLOP THEORY OF OPERATION 60030, 60250, 60260, 60270, 60300, 60330, 60630, 60700, 60800, 60890, 60970, 61030, 61070, 61110, 61140, 61240, 61310, 61340
41B	K	ISOLATE FAULTY MAIN LOGIC GATES 60030, 60250, 60260, 60270, 60300, 60330, 60570, 60630, 60700, 60750, 60770, 60800, 60840, 60890, 60950, 60970, 61030, 61070, 61110, 61140, 61240, 61310
41B	K	ISOLATE FAULTY FLIP-FLOPS 60030, 60250, 60260, 60270, 60300, 60330, 60630, 60700, 60800, 60890, 60970, 61030, 61070, 61110, 61140, 61240, 61310
41C	K	TROUBLESHOOT MAIN LOGIC GATES 60030, 60250, 60300, 60330, 60570, 60800, 60970, 61110, 61140, 61240, 61310
41C	K	TROUBLESHOOT FLIP-FLOPS 60030, 60250, 60330, 60800, 60970, 61110, 61140, 61240, 61310
41W3	K	APPLY TTL THEORY OF OPERATION 60250, 60270, 60330, 60800, 60840, 60890, 60950, 60920, 60950, 60970, 61030, 61110, 61140, 61240, 61270, 61310, 61340
41W4	K	APPLY CMOS THEORY OF OPERATION 60240, 60250, 60270, 60330, 60800, 61030, 61110, 61140, 61310, 61340

EFA No. TRA TASK STATEMENT AND NUMBERS

41X3 K ISOLATE FAULTY TTLs
60250, 60270, 60330, 60800, 60840, 60890, 60920, 60950,
60970, 61030, 61110, 61140, 61270, 61310

41X4 K ISOLATE FAULTY CMOSs
60250, 60270, 60330, 61030, 61110, 61140, 61310

41Y3 K TROUBLESHOOT TTL LOGIC FAMILIES
60250, 60330, 60800, 60970, 61030, 61110, 61140, 61240,
61270, 61310

41Y4 K TROUBLESHOOT CMOS LOGIC FAMILIES
60250, 60300, 60800, 61030, 61110, 61140, 61310

42A K DEVELOP BOOLEAN EQUATIONS FROM LOGIC DIAGRAMS
60800

42C K SIMPLIFY EXPRESSIONS BY USING BOOLEAN ALGEBRA
60800

43A K APPLY COMPUTER THEORY OF OPERATION
60190, 60250, 61030, 61110, 61140, 61240, 61270

43B S LOAD COMPUTER PROGRAMS
60190, 60210, 60240, 60250, 60290, 60710, 60780, 61060,
61070, 61110, 61140, 61170, 61230, 61240, 61310, 61370

43C K WRITE OR DEBUG COMPUTER PROGRAMS
61110, 61140, 61370

43D K ISOLATE FAULTY COMPUTER MAJOR UNITS
60190, 60250, 61030, 61240, 61270, 61370

43DY K TROUBLESHOOT COMPUTER MAJOR UNITS
60190, 61030, 61240, 61270

43EW K APPLY COMPUTER SUBASSEMBLY THEORY OF OPERATION
60190, 60250

43EX K ISOLATE FAULTY COMPUTER SUBASSEMBLIES
60250, 61030, 61370

EFA No.	TRA TASK STATEMENT AND NUMBERS
43EY	K TROUBLESHOOT COMPUTER SUBASSEMBLIES OR CIRCUITS 61030, 61110, 61140
43FW	K APPLY THEORY OF OPERATION OF COMPUTER MEMORIES 60190, 60300, 60680, 60800, 60860, 60950, 61110, 61140, 61170, 61240, 61310
43FX	K ISOLATE FAULTY COMPUTER MEMORIES 60300, 60860, 60950, 61110, 61140, 61240, 61270, 61310
43FY	K TROUBLESHOOT COMPUTER MEMORIES 60800, 61110, 61140, 61240, 61270, 61310
43GW	K APPLY COMPUTER PERIPHERAL DEVICE THEORY OF OPERATION 60190, 60250, 60260, 60270, 61030, 61240, 61270
43GX	K ISOLATE FAULTY COMPUTER PERIPHERAL DEVICES 60250, 60260, 60270, 61030, 61240, 61270, 61370
43GY	K TROUBLESHOOT COMPUTER PERIPHERAL DEVICES 60250, 61030, 61240, 61270
43H	K USE COMPUTER PROGRAMMING LANGUAGE 60030, 60190, 61110, 61140, 61370
44A	K APPLY MICROPROCESSOR THEORY OF OPERATION 60190, 60270, 60950, 61030, 61140, 61240, 61340
44B	K ISOLATE FAULTY MICROPROCESSORS 60190, 60270, 60950, 61030, 61140, 61240, 61370
44Y	K TROUBLESHOOT MICROPROCESSOR-CONTROLLED SYSTEMS 61030, 61110, 61140, 61240
45A1	K APPLY LOGIC CIRCUIT COUNTER THEORY OF OPERATION 60030, 60190, 60250, 60270, 60300, 60530, 60800, 60840, 60950, 60970, 61030, 61110, 61140, 61240, 61270, 61310, 61340, 61420

EFA No. TRA TASK STATEMENT AND NUMBERS

45A2 K APPLY LOGIC CIRCUIT REGISTER THEORY OF OPERATION
60030, 60190, 60250, 60270, 60300, 60530, 60800, 60840,
60950, 60970, 61030, 61110, 61140, 61240, 61270, 61310,
61340, 61420

45A3 K APPLY COMBINATIONAL LOGIC CIRCUIT THEORY OF OPERATION
60030, 60250, 60270, 60300, 61030, 61110, 61140, 61310,
61340, 61420

45B K ISOLATE FAULTY LOGIC COUNTERS
60030, 60190, 60250, 60270, 60300, 60530, 60800, 60840,
60950, 60970, 61030, 61110, 61140, 61240, 61270, 61310,
61420

45B K ISOLATE FAULTY REGISTER LOGIC CIRCUITS
60030, 60190, 60250, 60270, 60300, 60530, 60800, 60840,
60950, 60970, 61030, 61110, 61140, 61240, 61270, 61310,
61420

45B K ISOLATE FAULTY COMBINATIONAL LOGIC CIRCUITS
60030, 60250, 60270, 60300, 61030, 61110, 61140, 61240,
61310, 61340

45C K TROUBLESHOOT LOGIC COUNTERS
60030, 60250, 60300, 60800, 60970, 61110, 61140, 61240,
61270, 61310

45C K TROUBLESHOOT LOGIC REGISTERS
60030, 60250, 60300, 60800, 60970, 61110, 61140, 61240,
61270, 61310

45C K TROUBLESHOOT COMBINATIONAL LOGIC CIRCUITS
60030, 60250, 61110, 61140, 61240, 61310

46A K APPLY WEIGHTED RESISTOR D/A CONVERTER THEORY OF OPERATION
60530, 60800, 60840, 61110, 61140, 61340

46A K APPLY APPROXIMATION A/D CONVERTER THEORY OF OPERATION
60030, 60530, 60840, 61110, 61140, 61340

46A K APPLY RAMP A/D CONVERTER THEORY OF OPERATION
60530, 60840, 60950, 61110, 61140, 61240, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS
46B	K ISOLATE FAULTY WEIGHTED RESISTOR D/A CONVERTERS 60530, 60800, 60840, 61110, 61140
46B	K ISOLATE FAULTY APPROXIMATION A/D CONVERTERS 60030, 60530, 60840, 61110, 61140
46B	K ISOLATE FAULTY RAMP A/D CONVERTERS 60530, 60840, 60950, 61110, 61140, 61240
46Y1	K TROUBLESHOOT WEIGHTED RESISTOR D/A CONVERTERS 60800, 61110, 61140
46Y2	K TROUBLESHOOT APPROXIMATION A/D CONVERTERS 60030, 61110, 61140
46Y3	K TROUBLESHOOT RAMP A/D CONVERTERS 61110, 61140, 61240
47A	K APPLY TRANSMISSION LINE THEORY OF OPERATION 60190, 60570, 60800, 60840, 60890, 60920, 60950, 61000, 61070, 61110, 61140, 61240, 61340
47B	K PERFORM TRANSMISSION LINE MEASUREMENTS 60190, 60800, 60920, 60950, 61070
47C	K PERFORM TRANSMISSION LINE CALCULATIONS 60800, 60920, 60950
47D	K ISOLATE FAULTY TRANSMISSION LINES 60190, 60570, 60800, 60840, 60890, 60920, 60950, 61000, 61070, 61110, 61140, 61240
48A	K APPLY WAVEGUIDE THEORY OF OPERATION 60030, 60190, 60300, 60330, 61110, 61140, 61240, 61340
48B	K ISOLATE FAULTY WAVEGUIDES 60030, 60190, 60300, 60330, 61070, 61110, 61140, 61240, 61370

EFA No. TRA TASK STATEMENT AND NUMBERS

49A K APPLY MICROWAVE OSCILLATOR OR AMPLIFIER THEORY OF OPERATION
60190, 60300, 60800, 60840, 60920, 60950, 61030, 61070,
61110, 61140, 61240, 61340, 61420

49B K ISOLATE FAULTY MICROWAVE OSCILLATORS OR AMPLIFIERS
60190, 60300, 60800, 60840, 60920, 61030, 61070, 61110,
61140, 61240, 61370, 61420

49C A TUNE OR ADJUST MICROWAVE OSCILLATORS OR AMPLIFIERS
60040, 60810, 60850, 60930, 60960, 61080, 61120, 61150

49Y K TROUBLESHOOT MICROWAVE OSCILLATORS AND AMPLIFIERS
61030, 61110, 61140, 61240

50A K APPLY RESONANT CAVITY THEORY OF OPERATION
60300, 60330, 60570, 60780, 60920, 61110, 61140, 61340,

50B K ISOLATE FAULTY RESONANT CAVITIES
60300, 60330, 60570, 60920, 61070, 61110, 61140

50C A TUNE OR ADJUST RESONANT CAVITIES
60580, 60780, 61120, 61150

50Y K TROUBLESHOOT RESONANT CAVITIES
60300, 60330, 60570, 61110, 61140

51A1 K APPLY AM MODULATION TRANSMITTER THEORY OF OPERATION
60030, 60300, 60630, 60780, 60890, 61110, 61140, 61240,
61340

51A2 K APPLY FM TRANSMITTER THEORY OF OPERATION
60030, 60300, 60780, 61110, 61140, 61240, 61340

51A3 K APPLY SINGLE SIDEBAND TRANSMITTER THEORY OF OPERATION
60030, 60300, 60780, 61110, 61140, 61340

51A4 K APPLY PULSE MODULATION TRANSMITTER THEORY OF OPERATION
60030, 60300, 60570, 60630, 60780, 60840, 60890, 61110,
61140, 61240, 61340

EFA No.	TRA TASK STATEMENT AND NUMBERS
51B	K ISOLATE FAULTY AM TRANSMITTERS 60030, 60300, 60630, 60890, 61110, 61140, 61240, 61370,
51B	K ISOLATE FAULTY FM MODULATION TRANSMITTERS 60030, 60300, 61110, 61140, 61240, 61370
51B	K ISOLATE FAULTY SINGLE SIDEBAND TRANSMITTERS 60030, 60300, 61110, 61140, 61370
51B	K ISOLATE FAULTY PULSE MODULATION TRANSMITTERS 60030, 60300, 60570, 60630, 60840, 60890, 61110, 61140, 61240, 61370
51C	K TROUBLESHOOT AM TRANSMITTERS 60030, 60300, 61110, 61140, 61240
51C	K TROUBLESHOOT FM MODULATION TRANSMITTERS 60030, 60300, 61110, 61140, 61240
51C	K TROUBLESHOOT SINGLE SIDEBAND TRANSMITTERS 60030, 60300, 61110, 61140
51C	K TROUBLESHOOT PULSE MODULATION TRANSMITTER 60030, 60300, 60570, 61110, 61140, 61240
52A1	K APPLY AM RECEIVER THEORY OF OPERATION 60030, 60300, 60630, 60720, 60890, 61110, 61140, 61240, 61340
52A2	K APPLY FM RECEIVER THEORY OF OPERATION 60030, 60300, 60630, 61110, 61140, 61240, 61340
52A3	K APPLY SINGLE SIDEBAND RECEIVER THEORY OF OPERATION 60030, 60300, 61110, 61140
52A4	K APPLY PULSE MODULATION RECEIVER THEORY OF OPERATION 60030, 60300, 60840, 60890, 61110, 61140, 61240, 61340
52B	K ISOLATE FAULTY AM RECEIVERS 60030, 60300, 60630, 60720, 60890, 61110, 61140

EPA No.	TRA TASK STATEMENT AND NUMBERS
52B	K ISOLATE FAULTY FM RECEIVERS 60030, 60300, 60630, 61110, 61140, 61240
52B	K ISOLATE FAULTY SINGLE SIDEBAND RECEIVERS 60030, 60300, 61110, 61140
52B	K ISOLATE FAULTY PULSE MODULATION RECEIVERS 60030, 60300, 60840, 60890, 61110, 61140, 61240
52C	K TROUBLESHOOT AM RECEIVER CIRCUITS 60030, 60300, 61110, 61140
52C	K TROUBLESHOOT FM RECEIVER CIRCUITS 60030, 60300, 61110, 61140, 61240
52C	K TROUBLESHOOT SINGLE SIDEBAND RECEIVERS 60030, 60300, 61110, 61140
52C	K TROUBLESHOOT PULSE MODULATION RECEIVERS 60030, 60300, 61110, 61140
53A	A MEASURE TRANSMISSION POWER 60800, 60840, 60920, 61130
53B	K PERFORM TRANSMISSION POWER CALCULATIONS 60800, 60920, 60950
54A	K APPLY ANTENNA THEORY OF OPERATION 60630, 61240, 61340
54C	K ISOLATE FAULTY ANTENNAS 61070, 61240
54Y	K TROUBLESHOOT ANTENNAS 61240
56A	K APPLY SPEAKER THEORY OF OPERATION 60800, 61030, 61340
56B	K ISOLATE FAULTY SPEAKERS 60800, 61030

EFA No.	TRA TASK STATEMENT AND NUMBERS
56Y	K TROUBLESHOOT SPEAKERS 60800
57A	K APPLY PHOTOSENSITIVE DEVICE THEORY OF OPERATION 60190, 60420, 60490, 60530, 60800, 61030, 61310, 61340
57B	K ISOLATE FAULTY PHOTOSENSITIVE DEVICES 60190, 60420, 60490, 60530, 60800, 61030, 61310
57Y	K TROUBLESHOOT PHOTOSENSITIVE DEVICES 60420, 60800, 61310
58A	K APPLY DISPLAY TUBE THEORY OF OPERATION 60530, 60800, 60840, 60950, 61030, 61110, 61140, 61340
58B	K ISOLATE FAULTY DISPLAY TUBES 60490, 60530, 60800, 60950, 61030, 61110, 61140
59C	K APPLY ELECTROSTATIC DISCHARGE CONTROL (ESD) PRECAUTIONS 60040, 60190, 60200, 60240, 60250, 60260, 60270, 60290, 60300, 60310, 60330, 60350, 60360, 60370, 60410, 60420, 60430, 60470, 60480, 60490, 60500, 60520, 60530, 60540, 60550, 60580, 60600, 60630, 60640, 60670, 60680, 60690, 60700, 60720, 60730, 60740, 60750, 60760, 60780, 60790, 60800, 60840, 60850, 60860, 60890, 60900, 60950, 60960, 60970, 61030, 61040, 61070, 61080, 61110, 61120, 61150, 61170, 61180, 61210, 61220, 61310, 61320, 61390, 61400, 61410, 61420, 61430

APPENDIX E
ACRONYM LIST

ACRONYM	DEFINITION
A/D	ANALOG TO DIGITAL
AAI	AIR-TO-AIR INTERROGATOR
AC	ALTERNATION CURRENT
ACU	ANTENNA CONTROL UNIT
ADI	ATTITUDE DIRECTOR INDICATOR
AFRS	AUXILIARY FLIGHT REFERENCE SYSTEM
AIC	ANTENNA INDICATOR CONTROL
AIS/R	AVIONIC INTERMEDIATE/SHOP REPLACEMENT
AM	AMPLITUDE MODULATION
AMC	ADVANCED MICROELECTRONIC CONVERTER
AMI	AIRSPEED MACH INDICATOR
AMP	AMPLIFIER
AMP/DET	AMPLIFIER/DETECTOR
APDP	AUTOPILOT DAMPER PANEL
API	ANGLE POSITION INDICATOR
ARS	ATTACK RADAR SYSTEM
ASU	ANTENNA SELECTOR UNIT
ATE	AUTOMATIC TEST EQUIPMENT
ATSCS	AVIONICS TEST SET CALIBRATOR SET
ATTD	ADVANCED TECHNOLOGY TRAINING DELIVERY
AVVI	ALTITUDE VERTICAL VELOCITY INDICATOR
BCU	BALLISTIC COMPUTER UNIT
BDHI	BEARING DISTANCE HEADING INDICATOR
BIT	BUILT-IN TEST
CADC	CENTRAL AIR DATA COMPUTER
CAMS	CORE AUTOMATED MAINTENANCE SYSTEM
CCA	CIRCUIT CAD ASSEMBLIES
CDC	CAREER DEVELOPMENT COURSE
CDU	CONTROL DISPLAY UNIT
CENPAC	CENTRAL PROCESSOR AND CONTROLLER
CETP	COMPUTER EXERCISE TEST PANEL
CFTMP	CAREER FIELD TRAINING MANAGEMENT PLAN
CI	CONTROL INDICATOR
CIIL	CONTROL INTERFACE INTERMEDIATE LANGUAGE
CIU	CONTROL INTERFACE UNIT
CMDS	COUNTERMEASURES DISPENSING SYSTEM
CMOS	COMPLEMENTARY METAL OXIDE SEMICONDUCTOR
CP	CONTROL PANEL
CPIN	COMPUTER PROGRAM IDENTIFICATION NUMBER
CRS	COUNTERMEASURE RECEIVER SET
CRT	CATHODE-RAY TUBE
CTK	CONSOLIDATED TOOL KIT
CTS	COURSE TRAINING STANDARD
CW	CONTINUOUS WAVE
D/A	DIGITAL TO ANALOG
DAC	DIGITAL ANALOG CONVERSION
DATAAC	BINARY DATA REGISTER-ROUTER
DAU	DOPPLER ANTENNA UNIT
DB	DECIBEL
DC	DIRECT CURRENT

ACRONYM	DEFINITION
DCC	DIGITAL COMPUTER COMPLEX
DCR	DUAL CHANNEL RECEIVER
DDI	DIGITAL DISPLAY INDICATOR
DDPU	DIGITAL DOPPLER PROCESSING UNIT
DET	DETECTOR
DEU	DOPPLER ELECTRONIC UNIT
DIP	DUAL IN-LINE PROCESSOR
DMM	DIGITAL MULTIMETER
DP	DIGITAL PROCESSOR
DPTS	DIGITAL PROCESSOR TEST STATION
DTS	DYNAMIC TEST SET
DVM	DIGITAL VOLTMETER
ECA	ELECTRONIC CONTROL AMPLIFIER
ECM	ELECTRONIC COUNTERMEASURE
EPU	ELECTRONICS PROCESSOR UNITS
ESD	ELECTROSTATIC SENSITIVE DEVICE
ESS	ELECTRICAL STANDARD SET
EW	ELECTRONIC WARFARE
FDC	FLIGHT DIRECTOR COMPUTER
FDR	FLIGHT DATA RECORDER
FM	FREQUENCY MODULATION
FRTS	FREQUENCY RESPONSE TEST SET
GACT	GRUMMAN AUTOMATIC CABLE TESTER
GATS	GRUMMAN AUTOMATIC TEST SET
GSU	GIMBAL SUPPORT UNIT
HBPA	HIGH BAND POWER AMPLIFIER
HBR	HIGH BAND RECEIVER
HDI	HORIZONTAL DISPLAY INDICATOR
HF	HIGH FREQUENCY
HFPA	HIGH FREQUENCY POWER AMPLIFIER
HPMA	HIGH POWER MICROWAVE ASSEMBLY
HPRFC	HIGH POWER RADIO FREQUENCY CONSOLE
HSDI	HORIZONTAL SITUATION DISPLAY INDICATOR
HSDP	HORIZONTAL SITUATION DISPLAY PROCESSOR
HSI	HORIZONTAL SITUATION INDICATOR
HUD	HEAD UP DISPLAY
HVL	HIGH VOLTAGE LOAD
HVPS	HIGH VOLTAGE POWER SUPPLY
I/O	INPUT/OUTPUT
IBNS	INERTIAL BOMB NAVIGATION SYSTEM
IC	INTEGRATED CIRCUIT
ID	INTERFACE DEVICE
IDA	INTERFACE DEVICE ADAPTER
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IFF	IDENTIFICATION FRIEND OR FOE
ILS	INSTRUMENT LANDING SYSTEM
INS	INERTIAL NAVIGATION SYSTEM
IP	INDICATOR PANEL
IPB	ILLUSTRATED PARTS BREAKDOWN
IREP	INTERMEDIATE REPAIR ENHANCEMENT PROGRAM
IRU	INERTIAL REFERENCE UNIT
ISC	INSTRUMENT SET COUPLERS
ISD	INSTRUCTIONAL SYSTEMS DEVELOPMENT

ACRONYM	DEFINITION
ITA	INTERFACE TEST ADAPTER
ITS	INERTIAL TEST SET
IVD	INTERACTIVE VIDEO DISK
JFET	JUNCTION FIELD EFFECT TRANSISTOR
JI	JOB INVENTORY
JSS	JAMMING SUB-SYSTEM
LAM	LOW ALTITUDE MONITOR
LARA	LOW ALTITUDE RADAR ALTIMETER
LBPA	LOW BAND POWER AMPLIFIER
LBR	LOW BAND RECEIVER
LCD	LIQUID CRYSTAL DIODE
LCOS	LEAD COMPUTING OPTICAL SIGHT
LCU	LIQUID COOLING UNIT
LED	LIGHT EMITTING DIODE
LRU	LINE REPLACEABLE UNIT
LVPS	LOW VOLTAGE POWER SUPPLY
MBPA	MID-BAND POWER AMPLIFIER
MBR	MID-BAND RECEIVER
MC	MISSION COMPUTER
MCC	MISSION COMPUTER COMPLEX
MCR	MULTICHANNEL RECEIVER
MCU	MAINTENANCE CONTROL UNIT
MDC	MAINTENANCE DATA COLLECTION
MDL	MISSION DATA LOADER
MDT	MISSION DATA TERMINAL
MEW	MANUAL/ELECTRONIC WARFARE
MFG	MASTER FREQUENCY GENERATOR
MLV	MEMORY LOADER/VERIFIER
MODEM	MODULATOR AND DEMODULATOR
MOSFET	METAL OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTOR
MRT	MODULATOR RECEIVER-TRANSMITTER
MRU	MICROWAVE RECEIVER UNIT
MSD	MULTISENSOR DISPLAY
MSMA	MAXIMUM SAFE MACH ASSEMBLY
MTU	MAGNETIC TAPE UNIT
NCU	NAVIGATION COMPUTER UNIT
NDDP	NAVIGATION DATA DISPLAY PANELS
NDI	NONDESTRUCTIVE INSPECTION
NDU	NAVIGATION DISPLAY UNIT
OA/FI	OPERATIONAL ASSURANCE/FAULT ISOLATION
ODS	OPTICAL DISPLAY SIGHT
OJT	ON-THE-JOB TRAINING
OSR	OCCUPATIONAL SURVEY REPORT
PATEC	PORTABLE AUTOMATIC TEST EQUIPMENT CALIBRATOR
PC	PRINTED CIRCUIT
PCLC	POD COLDPLATE LIQUID COOLER
PCM	POWER CONTROL MONITOR
PE	PHASED INSPECTION
PI	PERIODIC INSPECTION
PMI	PHASED MAINTENANCE INSPECTION
PPG	PROGRAMMABLE PULSE GENERATOR
PROM	PROGRAMMABLE READ ONLY MEMORY
PS	POWER SUPPLY

ACRONYM	DEFINITION
PSVM	PHASE SENSITIVE VOLTMETER
R/T	RECEIVE/TRANSMITTER
RCL	RESISTIVE/CAPACITIVE/INDUCTIVE
RDC	RADAR DISPLAY CONTROL
RF	RADIO FREQUENCY
RI	RADAR INDICATOR
RMS	RADAR MODULATION SIMULATOR
RRT	RADAR RECEIVER-TRANSMITTER
RSC	RADAR SET CONTROL
RWF	RIVET WORKFORCE
SASE	SEMI-AUTOMATIC SUPPORT EQUIPMENT
SCA	SILICON CONTROLLED AMPLIFIER
SCR	SILICON CONTROLLED RECTIFIER
SDC	SIGNAL DATA CONVERTER
SE	SUPPORT EQUIPMENT
SEI	SPECIAL EXPERIENCE IDENTIFIER
SEL	SYSTEM ENGINEERING LABORATORY
SIA	SWITCHING INTERFACE ASSEMBLY
SIS	STALL INHIBITOR SYSTEM
SME	SUBJECT MATTER EXPERT
SPU	STABILIZED PLATFORM UNIT
SRU	SHOP REPLACEABLE UNIT
SST	SUB-SYSTEM TESTER
STS	SPECIALTY TRAINING STANDARD
SWR	STANDING WAVE RATIO
T AND I	TEST AND INSPECTION
TACAN	TACTICAL AIR NAVIGATION
TASU	TEST ADAPTER SWITCHING UNIT
TCTO	TIME COMPLIANCE TECHNICAL ORDER
TDR	TIME DOMAIN REFLECTOMETER
TF	TERRAIN FOLLOWING
TF AMP	TERRAIN FOLLOWING AMPLIFIER
TFR	TERRAIN FOLLOWING RADAR
TO	TECHNICAL ORDER
TRU	TESTER REPLACEABLE UNIT
TSLVC	TEST SET LOADER/VERIFIER COMPUTER
TTL	TRANSISTOR TRANSISTOR LOGIC
TWT	TRAVELING WAVE TUBE
UHF	ULTRA HIGH FREQUENCY
UJT	UNI-JUNCTION TRANSISTOR
UUT	UNIT UNDER TEST
VCO	VOLTAGE CONTROLLED OSCILLATOR
VD	VOLTAGE DETECTOR
VDVC	VARIABLE DIELECTRIC VACUUM CAPACITOR
VID	VIRTUAL IMAGE DISPLAY
VSD	VIDEO SIGNALS DISPLAY
WNC	WEAPONS NAVIGATION COMPUTER